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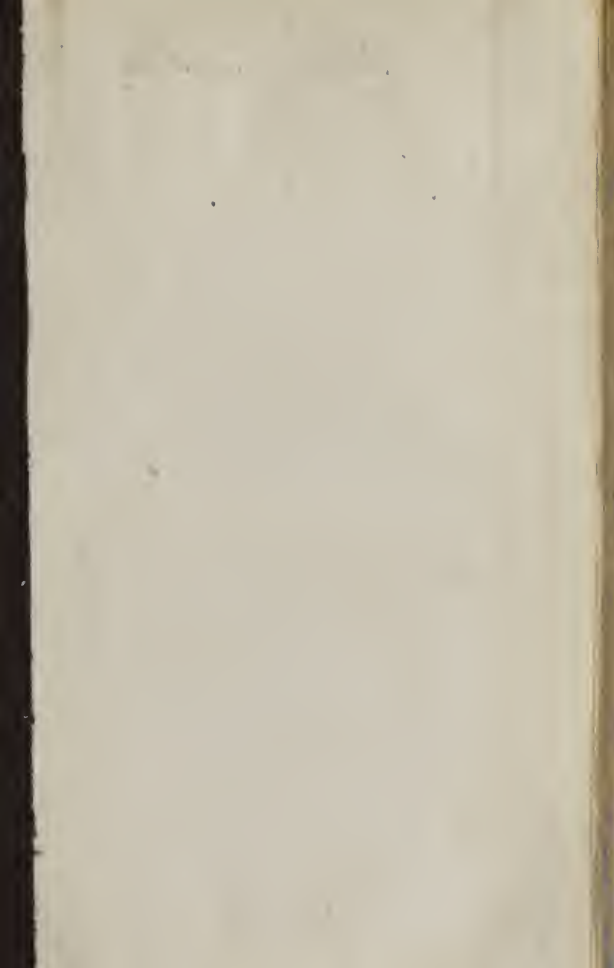
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ANNEX

Section

Number 24268





THE
PHYSICIAN'S
POCKET SYNOPSIS:
CONVEYING
AN ACCURATE AND CONCISE VIEW
OF THE
HISTORY, CHARACTER, SYMPTOMS, AND TREATMENT
OF THE VARIOUS
MEDICAL AND SURGICAL DISEASES
INCIDENT TO THE HUMAN FRAME.

COMPILED FROM THE BEST AUTHORITIES, WITH REFERENCES
TO THE MOST APPROVED MODERN WRITERS.

TOGETHER WITH THE
NATURES, PROPERTIES, AND DOSES OF THE SIMPLE AND
COMPOUND AGENTS EMPLOYED IN PHARMACY.

AS ADOPTED BY THE NATIONAL AND FOREIGN PHARMACOPEIAS.

ALPHABETICALLY ARRANGED.

BY J. S. BARTLETT, M. D.,
Of the Royal College of Surgeons in London, etc.

SECOND EDITION. 2426

REVISED, ENLARGED, AND BROUGHT DOWN TO THE PRESENT TIME,
BY HENRY COLEY,

Member of the Royal College of Surgeons in London, of the New York Medical Society, etc. etc.

NEW YORK:

G. & C. & H. CARVILL.

PHILADELPHIA: CAREY & HART, AND GRIGG & ELLIOT.—
BOSTON: MONROE & FRANCIS, AND ALLEN & FICKER.—
BALTIMORE: W. & J. NEAL.—WASHINGTON, D. C.: THOMP-
SON & HOMANS.—AND OTHER BOOKSELLERS.

WE
E291P
1833

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PREFACE.

THE original work, of which the present publication may be considered as an enlarged edition, was intended by its ingenious author to supply a want in medical literature that had frequently been experienced both by the practitioner and the student. Amongst the number of books on the sciences immediately connected with medicine, not one was to be found descriptive of the whole duty of the physician and surgeon. The works that had been published on various subjects were likewise too bulky to permit an easy reference, except in the closet of the reader, and hence the means of information were frequently denied to the young practitioner at a moment when they were most required. The nearest approach to this desideratum was the work of Dr. Eliot, which passed through six editions in England, and three in this country, and was then nearly out of print; but even this, although convenient for reference, was not only obsolete in its practice, but absolutely at variance with the discoveries of later times, as well as with the doctrines that had been based upon them. Under these circumstances, Dr. Bartlett was induced to submit a publication to the medical world, that should embrace all the material points of practice, serve as "a prompter to the memory of the practitioner," and as a ready guide to the student. He disregarded the objection entertained by some writers, that brief compilations had a tendency to withdraw the youthful mind from the more elaborate works on disease, properly considering that it was an indifferent compliment to the student of medicine, to suppose that he would rest satisfied with the knowledge conveyed in one volume, and abandon the stores of intelligence that were elsewhere offered to his acceptance. The work

of Dr. Bartlett accordingly appeared, and was valued as a pocket companion both by the practitioner and the student, as conveying the practical information required in the pursuits of medicine and surgery, and also in the no less important department of pharmacy.

The edition being exhausted, and repeated demands still made for the work, a revision of the publication was resolved upon, with such additions as the advancement in medical science required; still, however, adhering to the first plan, of retaining the subjects under their organic order, and thus avoiding a needless repetition. This task was confided to the subscriber, who in its execution was desirous, not only of recording the improvements in practice that had taken place during the last ten years, but of supplying such omissions as rendered the first edition imperfect; thus forming a complete work of reference, and a useful guide to practice. The work, however, "grew under his hands," and attained a much greater magnitude than originally intended, as well from the introduction of new matter, as from the more extended notice of some diseases, upon which new light had been thrown by the researches of the French pathologists.

In the present edition, as in the first, all attempts at elegant phraseology have been sacrificed to brevity of description; the great aim has been, to place within the means of the medical man, the creed, as it were, of his profession, by which his recollection of its principles might be quickened, and the experience of others brought within his immediate grasp. The subjects are generally described under their common appellations, together with their derivations, and the terms which science has attached to each. In some few instances the plan of the work has been departed from, when the subject was of intrinsic importance; for instance, *Aneurism*, instead of being included under the diseases of the vascular system, appears in its alphabetical order, simply from the desire that more attention may be paid to so important a topic. The diseases of the respiratory system are described under the head of *Lungs*; and as the stethoscope is, comparatively speaking, a recent invention, the subject of course occupies a much larger space than in the first edition. Auscultation is likewise considered as a separate subject, as well from its novelty as from its importance, the details under both subjects being principally taken from the works of Laennec, the discoverer of the

stethoscope, and Dr. William Stokes, of Dublin, who published a short but excellent treatise on auscultation. The whole of the amputations, and the principal surgical operations, are also described, the language of Averill being frequently employed, and the works of Cooper, Hey, Pott, Bell, &c. always appealed to as authorities. Wherever the experience of the subscriber was available, it has been recorded, in the desire of adding his mite to the stores of medical information.

The pharmacutical department is not exclusively devoted to the consideration of the substances claimed by the American pharmacopeia ; the principal foreign works on therapeutics have also been referred to, in the history, character, use, and dose, of each important simple and compound, employed in the treatment of disease, and the class and order of every important material gathered from the vegetable kingdom for the service of pharmacy, has been likewise inserted. The subject of poisons, is treated of in the chart form, for the convenience of reference, and is chiefly compiled from a work of the editor's, recently published.*

In the conviction that this work is the only publication of the kind, embracing as it does the whole practice of medicine, it is submitted to the profession at large, in the earnest desire that it may prove serviceable, and in the certainty that when it is consulted it will not mislead.

HENRY COLEY.

New-York, January, 1833.

*Treatise on Medical Jurisprudence : Part I. comprising the consideration of Poisons and Asphyxia. New-York. 1832.



POCKET SYNOPSIS.



ABDOMEN, *Injuries of*. See Wounds of the Abdomen.

ABORTION, (from *aborior*, to be sterile.) This term is used, when the impregnated uterus parts with its contents before the seventh month of gestation, a period too early for the fœtus to survive. See *Uterus*, *Affections of*.

ABSCESS. (*Abscessus*, from *Absecdo*, to depart, the parts becoming separated or parted from each other in this process.) A collection of purulent matter in various tissues of the body, and specifically denominated according to its situation, as *empyema*, when in the cavity of the pleura, *romica* in the lungs, *panaris* in the fingers, *arthropuosis* in a joint, *hepatitis* in the liver, *lumbar* and *psoas*, when occupying the region of the loins or the psoas muscle. Abscesses may be either acute or chronic, the former occurring during the inflammatory and suppurative stages, the latter in *Bubo*, *Mammary Abscess*, *Hypopium* and the above Specific Affections, under which heads they will be described. See also *Inflammation*.

ABSORBENTS. Those medicines, which have no acrimony in themselves, and counteract the acidities in the stomach and bowels, both by diminishing their irritability, and acting chemically upon the offending acid matter. Magnesia, prepared chalk, crab's claws, &c. are the absorbent medicines generally employed.

ABSINTHIUM. See *Artemisia*.

ACACIA, (*acacia* æ. *akakia*, from *akaζω*, to sharpen.) A genus of plants of the class Polygamia and order Monœcia, the Egyptian thorn, affording two varieties, much used in medicine.

1st. *Acacia Catechu*, commonly but erroneously termed *Terra Japonica*, or *Japan Earth*, growing in abundance in the East Indies. Astringent in operation, given in doses of from 15 grains to ℥j. in diarrhœa, and intestinal hæmorrhages; in coughs and hoarseness from the relaxation of the uvula, and locally in aphthæ.

2d. *Acacia vera*—*gum arabic*, principally brought from Senegal: a demulcent, given either in substance or decoction, in coughs, strangury, gonorrhœa, &c. ad libitum.

ACEPHALUS. A term applied in midwifery to a foetus, born without a head.

ACETATE. A salt formed by the union of the Acetic Acid with a salifiable base; the use of the following acetates are recognised in medicine:

Acetate of Ammonia, (Acetas Ammoniaë,) prepared by the addition of one part of sub-carbonate of ammonia to 32 parts of dilute acetic acid, and employed in the preparation of the liquor ammonia acetatis, or the spirit of Mindererus—Sudorific; externally cooling and astringent, in doses of from ʒ ij. to ʒ ss. every three or four hours; when diluted, it is applied to inflamed surfaces.

Incompatible with acids, alkalies, and nitrate of silver.

Acetate of Potass, (Acetas Potassæ.) Composition, Sub-carbonate of potass, lb j. Strong acetic acid and water, of each two parts. Gently cathartic, in doses of ʒ ij. to ʒ iij. diuretic ʒ j. to ʒ j. and administered in fevers, visceral disorders, and dropsy.

Incompatible with mineral acids, the salts of silver and mercury, sulphates of soda and magnesia, muriate of ammonia, and tartrate of potass.

Acetate of Lead, (Acetas Plumbi.) Composition, Carbonate of Lead lb. j. Acetic Acid 1½ gallons.

Sedative and astringent, internally in doses from gr. ½ to j. combined with opium, for visceral hæmorrhages. Externally, cooling and sedative in weak solutions, ʒ ss. to ʒ xvj. of distilled water, stimulant in solutions of ʒ j. to ʒ vj. employed in phlegmonous inflammations, burns, bruises, &c.

Incompatible with alkalies, earths, or acids, alum, borax, soaps, lime, and undistilled waters, tartarized iron or antimony, and sulphuretted hydrogen.

ACETUM, (Acetum. i. from Acer, sour.) Vinegar refrigerant, diaphoretic, antiseptic—in doses of from ʒ j. to ʒ iv. Externally, stimulant and discutient in sprains, bruises, &c. It forms, in combination, three formulæ of the pharmacopœia:

1st. *Acetum Cochici*, or Vinegar of Meadow Saffron. See *Colchicum*.

2d. *Acetum Scillæ*, or Vinegar of Squill. See *Squill*.

3d. *Acetum Opii*, or Vinegar of Opium. See *Opium*.

ACHILLES TENDON, Rupture of. See *Tendon*.

ACHOR. (Achor. oris, αχωρ, from αχνη, bran.) The crusta lactea, or scald head. See *Cutaneous diseases*.

ACIDS. *Acidum*, (sharp.) Many of these substances form an important class of medicinal compounds, and are derived either from the mineral or vegetable kingdoms; the acids derived from animal products, are not employed in medicine.

Mineral Acids. Sulphuric, Acidum Sulphuricum, Oil of Vitriol. From the oxygenation of sulphurous acid, which is formed by the combustion of sulphur.—Specific gravity, 1.97. *Properties and Doses.* Stimulant and escharotic externally; when internally employed, usually in a diluted form, in the proportion of \mathfrak{z} iss. to \mathfrak{z} xiv. of distilled water, of which from \mathfrak{m} x. to \mathfrak{m} xl. may be administered in any bland fluid, as a tonic, astringent, or refrigerant, in dyspepsia, diabetes, hæmoptysis, hectic, &c.; when given as a gargle in cynanche, it may be made a little stronger. It forms in combination with the metals, the sulphates of copper, iron, and zinc, and the sulphurets of antimony and mercury; with the alkalies, the sulphates of soda and potass; and with the earths, the sulphates of magnesia and barytes.

Nitric, Acidum Nitricum, Aqua Fortis.—Prepared from the nitrate of potass, by the action of sulphuric acid.—Specific gravity, 1.500. *Properties and Doses.* Tonic, antiseptic, alterative, escharotic; when diluted with nine times its weight of distilled water, it forms a valuable remedy in the low stages of typhus, in hepatitis, and dyspepsia, in doses of from \mathfrak{m} x. to \mathfrak{m} xxx. contained in a considerable quantity of fluid; it has also been extensively tried as an antisiphilitic in lieu of mercury, but without success. An ointment is prepared by the addition of \mathfrak{z} j. of this acid to \mathfrak{z} iij. of lard, which may be usefully applied to foul and obstinate ulcers. It forms but two combinations employed in medicine, the nitrates of silver and potass. (See *Fumigation*.)

Muriatic, Acidum Muriaticum.—Obtained by the action of strong sulphuric acid, on the muriate of soda or common salt.—Specific gravity, 1.2844. *Properties and Doses.* Tonic, antiseptic, diuretic. When diluted by an equal quantity of distilled water in doses of from \mathfrak{m} x. to \mathfrak{m} xx. or in gargles from \mathfrak{z} ss. to \mathfrak{z} ij. in \mathfrak{z} vj. of fluid, administered in typhus, cutaneous eruptions, and inflammatory sore throats. A bath acidulated with this acid, was recommended by Dr. Scott, of London, for hepatic diseases, but the practice was not sufficiently successful, to entitle it to general adoption. This acid combines with the alkalies, in forming the muriates of potass, soda, and ammonia, with gold and barytes, in forming muriates of that metal and earth. (See *Fumigation*.)

Arsenious, Acidum Arseniosum, White Arsenic. Prepared by heating the oxide of arsenic in the atmospheric air; also found native.—Specific gravity, 3.7. Tonic, alterative, and escharotic, in doses of from $\frac{1}{16}$ to $\frac{1}{4}$ gr.; this substance is now but little employed in medicine; a preparation called Fowler's Solution, was at one time in great repute in the treatment of intermittent fevers: it consisted of a drachm of arsenic, and a drachm of sub-carbonate of potass boiled together in a pint of distilled water, and in a glass vessel, until the arsenic was nearly dissolved; when the solution was cold, four drachms of the compound spirit of la-

vender were added, and then as much distilled water as would in addition fill up a pint measure; each drachm of this liquid contained half a grain of arsenic.

The celebrated cancer caustic, as it was termed, of Justamond, consisted of two parts of levigated antimony to one of arsenic. This acid forms no salts that are employed in medicine.

Chloric. Prepared by adding sulphuric acid to a solution of the chlorate of barytes, which attracting the barytes from the chloric acid, an insoluble sulphate is formed and precipitated, while the chloric acid remains in solution. Its combinations are alone employed in medicine; chlorates are formed with the alkalies, potass, soda, and ammonia, with the earths, magnesia, lime, and barytes; it also forms with mercury, a prochloride, which is calomel, and a bi-chloride, which is corrosive sublimate.

Carbonic Acid, or fixed air, as it has been termed by Dr. Black, from its property of becoming solid, when combined with the alkalies and earths, is of great importance in a medical point of view, on account of the combinations it forms with salifiable bases. With the alkalies, it forms the carbonates of potass, soda, and ammonia, with earths the carbonates of lime and magnesia, and also the carbonate of lead, with that metal; the sub-carbonates of potass and soda are also yielded.—Specific gravity of carbonic acid, 1.5230. It is usually prepared by the action of sulphuric acid on the carbonate of lime (chalk) which liberates the carbonic acid contained therein; it also exists in a large quantity in nature, forming nearly one half of the weight of marble, lime, stone, chalk, and the calcareous earths; it is the principal product of the combustion of all carbonaceous matter, is contained in many mineral waters, and is also formed during respiration in consequence of the combination of the oxygen of the air, with the carbon of the blood. The carbonic acid is the gas so largely evolved during fermentation, and is also what is termed choke-damp, by the coal miners. (See *Asphyxia*.)

Phosphoric, may be prepared by burning phosphorus in atmospheric air or oxygen gas.—Specific gravity, 2.687. The acid is not employed in medicine, but yields in combination with lime, a phosphate, which is employed in the preparation of the phosphate of Soda.

Of the *Vegetable Acids*, the following are pharmaceutically employed.

Acetic, Acidum Aceticum, is prepared in the purest state by the destructive distillation of wood; it is also formed by the spontaneous decomposition of many vegetable substances; it is the base of vinegar (*Acidum Aceticum Impurum*) which is prepared by the fermentation of vinous liquors. When pure, this acid is of the specific gravity of 1.063. *Properties and Doses.*—Of vinegar refrigerant, diaphoretic, antiseptic, diuretic, in doses from $\mathfrak{z} \text{ i}$. to $\mathfrak{z} \text{ iv}$.; externally stimulant and discu-

uent; of the strong acid the external properties are escharotic and rubefacient. Acetic acid forms salts with the different salifiable bases, and oxidates iron, copper, zinc, and some other metals; with the alkalies it forms acetates of potass and ammonia, with the metals, acetates of lead, copper, and zinc, and also a sub-acetate of lead, these being the only acetates employed in medicine.

Boracic.—Prepared by an addition of sulphuric acid to a solution of borax in hot water, until a sensibly acid taste is imparted; when cool, a number of small shining laminated crystals will appear. It combines with soda and lime in forming borates, and is not itself available in practice.

Benzoic, Acidum Benzoicum, obtained by sublimation from the balsam called Benzoin, or Benjamin. This acid is slightly stimulant and expectorant, and has been given in cases of chronic catarrh, in doses of from grs. x. to 3 ss. but with doubtful efficacy; it is principally employed in the preparations of the camphorated and ammoniated tinctures of opium. It unites with the earthy and alkaline bases forming salts, termed Benzoates, none of which are employed in medicine.—Specific gravity of the acid, 0.667.

Citric, Acidum Citricum, exists in great quantity in the juice of the lemon and lime, from which it is separated by adding chalk as long as any effervescence is occasioned; an insoluble citrate of lime is thus formed, from which the acid is disengaged by sulphuric acid, which must equal in quantity, the weight of chalk employed. Refrigerant and antiseptic in operation, in doses of from grs. x. to 3 ij. mixed with any bland fluid. Citrates are formed, with earthy and alkaline bases, but which have no place in pharmacopœias.

Prussic, Acidum Hydro-Cyanicum; this is usually prepared according to the directions of Scheele, by digesting one ounce of the red oxide of mercury, with two ounces of Prussian blue (which is a compound of the cyanide, and hydro-cyanate of iron) in six ounces of water, which is boiled for a few minutes, carefully agitating it the whole time; it is then filtered, and to the clear solution three drachms of sulphuric acid, and an ounce and a half of iron filings are added; when all action ceases, this liquid is exposed to heat in a retort, and the acid separated by distillation.—Specific gravity at 45° Fah. 7058. *Properties and Doses*—directly sedative, and employed in high pulmonary and other inflammations in doses of four drops (of the prepared acid of Scheele) twice a day; in cases of chronic catarrh, in dyspeptic affections, and as an external application in impetigines, and other cutaneous disorders, it is also of singular efficacy; it should be administered in any bland fluid. The salts formed by a combination of this acid with salifiable bases, are termed Prussiates, of which the prussiate of iron, or Prussian blue is alone employed in medicine.

Tartaric, Acidum Tartaricum, is usually obtained from the bi-tartrate of potass (cream of tartar) by dissolving it in water, and then adding chalk, so long as effervescence is occasioned; the tartrates of lime and potass are thus formed, from which the tartaric acid is disengaged by the action of sulphuric acid, in the same mode as described under the head of citric acid. Refrigerant and antiseptic in operation, given in inflammatory affections, and scorbutus, in doses of from grs. x to 3 ss. dissolved in water, or in combination with the carbonate of soda, in preparing the saline draught. Tartrates are formed by this acid with salifiable bases of the alkalies, soda, potass, and ammonia, and the bi- and super-tartrate with potass, and also with antimony (the common tartar emetic.)

ACIDITY. In the stomach and bowels.—See *Dyspepsia*.

ACNE. A small pimple or tubercle on the face.—See *Cutaneous diseases*.

ACONITUM, Aconite, a plant, class Polyandria, order Trigynia, the dried leaves of which (commonly called Monk's-hood leaves) are given in gradually increased doses of from one to five grains, in scrofula, scirrhus, palsy, &c. as a narcotic, or sudorific. An inspissated extract is also administered in the proportion of from grs. x. to ʒ j. in pills.

ACUPUNCTURATION, (acupunctura, from acus, a needle, and punctura, a prick,) a mode of treatment for various acute muscular and nervous pains, consisting of the introduction of from two to six finely pointed silver or steel needles, into the part affected, practised in China and Japan from time immemorial, under the name of zin-king, or needle-pricking. It was adopted in European practice by M. Berlioz of Paris, and Mr. Churchill of London, in 1816, for affections of the above character, but chiefly in severe chronic rheumatism; the needle is introduced with a rotatory motion, producing very little pain, and is allowed to remain in the part for five or six minutes; from the published accounts of the advantages attending this operation, it is entitled to considerable attention, particularly from the reports of Dr. Elliotson, who has given it an extensive and, upon the whole, a successful trial in the London Hospitals; his plan of procedure varies, however, from that pursued by others, in permitting the needle to remain in the part for an hour or two, instead of withdrawing it in a few minutes.

The *modus operandi* of acupuncturation, has been explained, and probably correctly, on the principle of counter-irritation; but M. Pouillet has endeavoured to prove, that electro-magnetic phenomena take place in the operation.

See *Mémoire sur les Maladies Chroniques, les évacuations sanguines, et l'acupuncture*, par M. Belioz, Paris, 1816.

A Treatise on Acupuncturation by Churchill, London, 1828, Med. and Chir. Transactions.—Vol. 18, page 467.

Journal de Physiologic Exper. par Majendie, tom. 5, art. 1.

ADHESIVE INFLAMMATION, is that process which causes different parts of the body to adhere or grow together, as in cases of recent wounds. See *Wounds and Inflammation*.

ÆGYLOPS, (æglyops-opis, from αιζ, a goat, and ωψ, an eye,) from the supposition that goats were subject to it.—See *Eye, diseases of*.

ÆRUGO, (from æs. copper,) the rust of any metal, applied in Medicine to the rust of copper, or *verdigris*, which see.

AFFUSION. (Affusio, from ad and fundo, to pour upon,) the pouring a quantity of water over the patient's head and body, in the hot stage of typhus or other fevers.—See *Fevers*.

AGARIC. (Agaricus, i. *αγαρικός*, from Agaria, a town in Asia.) A genus of plants of the class Cryptogamia, and order Fungi; the various edible and poisonous mushrooms, belong to this class.

A fungous production, growing on the oak tree, was formerly much used, in restraining hæmorrhage, and termed agaric.

AGUE.—See *Fevers, intermittent*.

ALBORA. A species of itch.—See *Cutaneous diseases*.

ALBUGO. A white opacity of the cornea of the eye. See *Eye, diseases of*.

ALCOHOL. Rectified spirit, a powerful and diffusive stimulant, seldom administered in a pure state, but advantageously used when diluted, in cases of debility and low fevers, and applied externally to the surface of the body as a refrigerant and sedative in burns, cases of low inflammations, &c.

ALKALIES. (From Alkali, in Arabic signifying burnt.) There are three substances commonly known by this term. *Potass, Soda, and Ammonia*.

ALMOND. (Amygdalus Communis—Class Icosandria, order Monogynia.) The almond tree is originally a native of Barbary, and yields both sweet and bitter almonds; the amygdala dulcis, or sweet almond is demulcent, and employed in inflammatory complaints, chiefly as a medium for more active medicines; the amygdala amara or bitter almond, is sedative and very seldom employed.

Official preparations.—Oil of almonds. (Oleum amygdalæ) ℥ ss. to ℥ i.—Emollient and demulcent—Almond mixture (mistura amygdalæ) ad libitum.

ALOES.—Aloe. es., from *ahlah*, signifying in the Hebrew, growing near the sea. (Class Hexandria, order monogynia,) two varieties are used in medicine.—The Aloe Socotrina, from the island of Socotora in the Indian Ocean, and from the Cape of Good Hope, and the Aloe Hepatica from Barbadoes, of which the former is the purest, least offensive to the taste, and mildest in its operation—Cathartic, anthelmintic, emmen-

agogue, in doses of from grs. v. to ℥ j. for the first, and two or three grains twice a day for the two last purposes. The employment of all medicines, of which aloes forms a part, should be avoided in all hæmorrhoidal cases, as tending to irritate the rectum, and of course increase the complaint.

Official preparations. Tincture of aloes and myrrh. (*Tinctura aloes et Myrrhæ*)—Cathartic stomachic, 3 j. to 3 ij.

Tincture of rhubarb and aloes, (*Tinctura Rhei et aloes*), same effect, increased to 3 iv. as a purgative. Powder of aloes with canella, (*Pulvis aloes cum canella*.) Grs. x. to ℥ j. Cathartic, stomachic, Pills of aloes and myrrh, (*Pilulæ Aloes cum Myrrha*)—same dose and operation, also an emmenagogue.

ALTERATIVES. That class of medicines, administered to re-establish the general health, through the secreting organs, without producing any sensible evacuation.

ALUM. *Alumen.* (*Super-sulphas aluminæ et potassæ.*) A triple salt, consisting of sulphuric acid, alumine, and potass—a powerful astringent in hæmorrhages and inordinate fluxes, and externally useful also as an astringent and repellant, in lotions, gargles, and collyria. Internal dose, from grs. v. to grs. xv.

Official preparations. Dried alum. (*Alumen Exsiccatum*), escharotic, applied to foul and fungous ulcers. Compound solution of alum, (*Liquor aluminis compositus*), for injection in fluor albus, gleet, &c. for collyrium, well diluted, and for lotion in cutaneous eruptions, &c. Alum is incompatible with the alkalies, lime, magnesia, acetate of lead, and the infusion of galls.

ALUM ROOT. *Heuchera Radix.*—The root of the *Heuchera Americana*, or *Sanicula Europæa*. The Sanicle, a plant of the class Pentandria, and order Digynia—powerfully astringent in operation, but not much employed.

ALVINE CONCRETIONS. See *Calculi*.

AMAUROSIS, (from *αμαρσσω*, to darken,) a disease of the retina. See *Eye*.

AMBER. *Succinum*—a bituminous substance, the oil of amber. (*Oleum Succini*), is stimulant, anti-hysteric, and promotes the fluid secretions ℥ x. to xv. but little used in medicine.

AMBLYOPIA, (from *αμβλος*, dull, and *ὤψ*, the eye,) the dimness of sight of old people. See *Eye*.

AMENORRHÆA, a total or partial suppression of the menses. See *Uterus*.

AMENTIA. Imbecility. See *Mania*.

AMMONIA, an invisible gas, commonly termed the Volatile Alkali; it can easily be procured from the decomposition of animal matter, but

for chemical purposes it is generally prepared from sal ammoniac, which is a muriate of this substance. In combination with the acids, it forms numerous salts, of which, the following are employed in medicine—acetate, muriate, carbonate, and sub-carbonate, and nitrate of ammonia.

Official preparations. See MURIATE of *Ammonia*, under the head of *Muriates*.

AMMONIACUM. *Gum Ammoniac.*—A gum-resin—stimulant, antispasmodic, expectorant in doses of from grs. x. to xxx. in pill, combined with squill or myrrh, or in mixture rubbed up with water. Externally, discutient and resolvent.

Official preparations. Ammoniacum mixture, (*Mistura Ammoniaci.*) Compound squill pills, (*Pilulæ Scillæ Compositæ.*) Ammoniacum plaster, (*Emplastrum Ammoniaci.*) Plaster of ammoniacum and mercury, (*Emplastrum Ammoniaci cum Hydrargyro.*)

AMPUTATION. (*Amputatio*, from *amputo*, to cut off,) the operation of removing a limb, or other part of the body; it may be convenient to commence with those amputations practised on the upper extremity; in removing the *second or third phalanx of a finger*, a circular incision should be made, a quarter of an inch nearer its extremity than the joint, at which you amputate; then an incision on each side extending from the first, to the joint, forming two flaps which are to be dissected back, previously to the tendons, and the lateral and capsular ligaments being cut through, which finishes the operation; no ligatures are in general required for the divided vessels, the hæmorrhage being restrained, when the flaps are brought over the stump. In *amputating a finger at its first phalanx or junction with the metacarpal bone*, the hand should be placed prone, and the situation of the joint accurately ascertained, when the finger being bent, the thumb of the left hand of the surgeon upon its dorsal, and his fore finger upon its palmar surface, an incision should be commenced about the middle of the head or knuckle of the metacarpal bone, and extended almost parallel to the bone of the finger, lowering the hand till the knife is perpendicular, then cutting directly from him, till he is opposite the joint, he turns the edge of the knife and cuts through it, and then passing the knife between the bone and integuments, cutting towards himself, by which means, he forms two flaps; no ligatures will be required after this amputation, unless the finger be much enlarged by disease, when the arteries also increased in size, must be secured. Where *amputation* is necessary in the *second or third phalanges*, it is desirable to perform it at the metacarpal joint, as the first phalanx, when left, is not only useless, but a deformity and an inconvenience; whereas the total removal of the one finger, gives more room for the motions of the others, and can scarcely be perceived by a casual observer.

In the *amputation of the metacarpal bone of the little finger*, the hand should be kept prone, and the muscles on the side drawn towards the palm, in order to find the carpal end of the bone, on which the operator's left thumb is placed; then allowing the muscles to return to their situation, and applying his left index finger beneath, exactly opposed to his thumb, the muscles being now pressed outwards, the bistoury held perpendicularly, is thrust from above downwards, completely through the integuments and muscles opposite the joint, and close to the bone, along which he continues his incision, till he comes to its other extremity, where he cuts out: the flap thus formed, is held aside while the integuments are dissected from the dorsum of the bone, the tendon being left; the joint is now cut into, in an oblique direction towards the thumb: the surgeon then, thrusting the knife from above downwards, between the fourth and fifth metacarpal bones, avoiding any injury to the palmar integuments, separates the two bones from each other by cutting out towards himself, and drawing the bone apart from its fellow, divides the uncut dorsal and lateral ligaments, finishing the operation, by turning the knife upwards, and cutting through the palmar muscles and ligaments.

The vessels should be secured, and the divided surfaces kept in contact by adhesive plaster.

In *amputation of the right metacarpal bone of the thumb*, the hand should be placed supine, and vice versa, when the left requires amputation; the hand being firmly held by an assistant, and the thumb separated from the index finger, the heel of a strong bistoury is applied to the middle of the space between them; then, keeping the point perpendicularly upwards, the surgeon cuts forwards, between the metacarpal bones of the thumb and fore finger, until his knife striking against the trapezium, he turns the point of the bistoury towards the joint, and opens it, by dividing the capsular ligament; he now glides the knife through the joint, at the same time pressing the head of the bone towards the hand, and forms a flap from the side of the bone, by cutting towards himself, the proper extent of the flap being ascertained by approximating the thumb to the index finger. The hæmorrhage, if considerable, must be suppressed by ligature.

The *amputation of the lower third of the fore arm with two flaps*, is preferred to that by the circular incision by many practitioners; it is thus performed. The brachial artery being compressed by the tourniquet, the hand as before in a medium state between pronation and supination, and the operator standing on the inner side of the arm, he thrusts a catlin beneath the integuments from below upwards, introducing it at the anterior and inner edge of the ulna, close to the bone, and pushing it on till it appears at a corresponding point on the outer edge of the ra-

rius, when he forms a flap half an inch or a little more in length, by cutting towards the wrist; he then passes the knife under the integuments, behind the bones, from the point where it came out before the radius, to that on the inner edge of the ulna, where it was first introduced, and forms a flap posteriorly of the same length as the former; these flaps being held back by the assistant, the knife is passed between the radius and ulna—from the anterior side, dividing the muscular fibres and interosseal ligament, and drawn out by cutting round the ulna, and then repassed between the bones from the posterior surface, and withdrawn by cutting round the radius, severing by this figure of eight incision, all the muscular fibres, interosseous ligament, and periosteum, previously to putting the arm in a state of pronation, when the radius and ulna are sawn through, commencing with the former bone, as well from its larger size in this situation as from the circumstance of the ulna owing to its connections with the humerus, being better able to bear the weight of the saw: four arteries generally require ligatures, the radial and ulna, and the two interosseal between the bones; all loose portions of tendons remaining should be cut off, and the flaps approximated as usual.

It only remains to be observed, that the above is the mode in which this amputation is performed on the right arm; when the left arm is thus removed, the knife must be thrust from above downwards anteriorly, or from the radius to the ulna, and the reverse posteriorly.

The circular amputation at the middle of the fore arm, is performed in the same manner, with the exception that one flap only is formed from the reflected integuments, instead of two, by the separate introductions of the catlin.

In the amputation of the arm at the middle or lower third of the humerus, the patient should be seated on a low chair, the extremity raised from the side, and carefully supported above the intended line of incision, and at the elbow; the tourniquet being applied over the brachial artery, the operator places himself on the outer side of the patient, and kneels on his right knee, keeping his left bent in advance; then directing the point of the amputating knife towards his right shoulder, the assistant drawing the skin upwards, he makes a circular incision, gradually rising from his knee as he completes it; then dissecting back the skin for about an inch, while it is kept reflected, he stoops as before, and level with its base, again makes a circular cut through the muscles nearly down to the bone; a third incision divides the deeper seated muscles, and being directed obliquely upwards, exposes the bone a little higher up, to which part, the periosteum being cut through, and all the soft parts carefully held back, and defended by a retractor or fold of linen, the saw is applied and the bone sawn through; the brachial

artery, the deep humeral and occasionally other vessels are then tied, the edges of the wound approximated, and a roller applied. We may now proceed to the consideration of *Amputations of the lower extremity*, and firstly of the *toes*; the practice recommended in the removal of the fingers, may with the necessary modifications, be acted upon in amputations of the toes, but when it is necessary to remove the metatarsal bones of the great or little toe, it is better to saw them off than to cut into the joints of the tarsus. The late Mr. Hey, of Leeds, in his *Practical Observations in Surgery*, recommends, however, *the partial amputation of the foot, at the junction of the tarsal with the metatarsal bones*, when the disease has not extended to the former part; and M. Lisfranc of Paris, has repeatedly performed the same operation. M. Chopart has amputated *at the articulation of the Astragalus and Os calcis with the scaphoid and cuboid bones*, whence this operation has been named after him. It is thus performed:

The articulation is found, by tracing with the index finger from the inner malleolus, forwards and downwards, till the projecting part of the scaphoid bone is felt, which marks the situation of the joint on the inner side of the foot. On the outer side, it is found an inch from the tarsal head of the metatarsal bone, which supports the little toe. These two opposed points being marked, one by the thumb of the left hand, and the other by the index finger, while the sole of the foot is grasped firmly in the palm, and the leg fixed by an assistant; the operator with a catlin, makes a semilunar incision through the integuments and tendons, extending from the point before his thumb, across the dorsum of the foot, to that before his index finger. Then bending the foot, he opens the joint by dividing the ligament which connects the astragalus to the scaphoid bone; he then cuts through the strong ligaments which join the calcis to the cuboid bone, with the point of his knife, holding it perpendicularly, cutting transversely, and bending the part to be removed farther backwards. Having cut through the articulation, he forms a flap of sufficient length to cover the stump, from the sole of the foot, by cutting towards the toes, between the muscles and metatarsal bones. The bleeding arteries being tied, the edges of the flap are to be kept in contact with the integuments surrounding the dorsum of the foot, by straps of adhesive plaster or sutures.

Amputation, a little below the middle of the leg, with a flap. The femoral artery being compressed, the limb is raised and supported at the foot and the upper part of the leg; the surgeon on the inner side of the limb placing the thumb of his left hand on the inner border of the tibia, and his fingers on the fibula, makes an incision through the integuments with a catlin, across the fore part of the leg, extending from the outer edge of the fibula to the inner of the tibia, and pushing it behind and

close to the bones, from the inner to the outer extremity of this incision, he forms a flap of the desired length, by cutting down the leg; this being held back, the operator places the edge of the knife on the posterior surface of the fibula, and cuts across it till its point reaches the interosseal space, through which he pushes it, dividing the muscles and ligament between the bones; without raising the knife from the tibia, he draws it round that bone, dividing the muscular fibres and periosteum, till he reaches its anterior border, where he again passes it between the bones from above downwards; cutting through such fibres as have not been divided, and withdraws the instrument by cutting to the posterior and outer edge of the fibula; the saw is then used, first upon the tibia for about a third of its substance, and then cutting both bones at the same time. The anterior and posterior tibial and peroneal arteries being secured, the cut surfaces are covered by the flap, and the edges approximated by plaster, and sutures if judged necessary.

The Circular Amputation below the knee, or four inches from the point of the patella, and also *the circular amputation immediately below the tuberosity of the tibia*, are also occasionally performed, and the practice of the latter is much extolled by Mr. Guthrie.

Amputation of the thigh, at the lower or upper third. The patient should be seated on a table, his back supported by pillows, with the tourniquet applied over the femoral artery as high up as possible, or the artery pressed against the pubes, a mode of restraining the circulation justly preferred by many practitioners; the extremity supported by two assistants, one at the upper part of the limb, and another holding the leg. The surgeon, on the outer side of the limb, and kneeling on his right knee, then makes a circular incision through the integuments round the thigh; then loosening the skin for about three inches, by cutting through the cellular texture, connecting it to the fascia and muscles beneath; the skin being drawn upwards with a moderate degree of force, he makes another circular incision higher up the limb, through the more superficial muscles, while those deeper seated, he divides by a third incision still higher, which lays the bone bare at the part, where it is to be sawn through. A linen retractor is now applied, and held by the assistant to shield the muscles during the use of the saw; the femoral artery, and other branches are secured, and the operation finished by bringing the cut edges together. M. Dupuytren performs this operation in a very different manner; at one circular incision, he cuts through the integuments and muscles superficial and deep, to the bone; then allowing the divided muscles to contract, in which they are aided by the assistant, he again carries the knife round the bone to cut such fibres as may still be attached to it, before he applies the saw; this mode of operating is perhaps advisable, where no attempt is made to heal by the first

intention, as in the Parisian hospitals, but if the adhesive process be encouraged, it will be difficult, if not impossible, to keep the cut edges in contact where such a mass of muscle is left, as there must be after this operation. The amputation at the middle of the thigh is occasionally performed in Great Britain, and very generally on the continent of Europe, with two flaps; this operation is conducted upon the usual principles of flap operations, which have been already sufficiently alluded to.

AMPUTATIONS AT THE JOINTS.

At the shoulder-joint. The subclavian artery being firmly compressed by an assistant, from above the clavicle, as the vessel passes over the first rib, a semicircular incision is to be made with its convexity downward, across the integuments covering the deltoid muscle, about four inches below the acromion. The skin should not be detached, but the surgeon at once proceed to raise the muscle from the bone, quite up to the joint; if much hæmorrhage ensue from the circumflex arteries, they should at once be secured, before the operation proceeds further; the tendons passing over the joint and also the capsular ligament should now be cut, and the head of the bone dislocated from its cavity, when by one stroke of the amputating knife, the skin, muscles, and other parts beneath the joint, should be divided, thus completing the separation of the limb; the operation is finished by applying a ligature to the axillary artery, and bringing the integuments together. Several other modes of performing this operation have been devised, but the one described appears to unite quickness and simplicity in a remarkable degree.

At the elbow-joint, as performed by M. Dupuytren, of Paris. The brachial artery being compressed by the tourniquet, and the extremities fixed and supported, the operator thrusts a catlin beneath the integuments and muscles of the fore arm, just below the condyles of the humerus at the bend of the elbow, and forms a flap three inches in length by cutting towards the hand; this flap being held back, he cuts through the integuments and muscles, on the posterior side of the arm, by an incision level with the extremity of the olecranon, then feeling with his left thumb, for the head of the radius, he separates it from the humerus, by directing his knife obliquely between the two bones, and removes the ulna by cutting round its sigmoid cavity, taking away as much of the capsular ligament as possible. The bleeding vessels being tied, the condyles of the humerus are covered by the flap, and the edges of the wound approximated.

For an *Amputation at the wrist-joint*, the tourniquet should be applied to the lower part of the upper arm, the fore arm being kept in a state between pronation and supination; the operator, with his left hand takes hold of the member about to be removed, placing his thumb on

its palmar, and fingers on its dorsal surface, if it be the right hand; and vice versa if it be the left hand; then feeling for the styloid process of the radius, an incision is commenced an inch before it, at the root of the thumb, and carried round the integuments of the wrist; these being drawn upwards, are dissected as far back as the styloid process, when, the edge of the knife being directed obliquely towards the radius, the joint is opened by cutting through the ligament passing from the styloid process to the scaphoid bone; the hand of the surgeon is now slightly borne downwards, in continuing the incision through the joint, at the same time cutting the tendons on both sides as close to the radius as possible till the hand is removed, an assistant shielding the reflected integuments from the knife; the radial, ulnar, and interosseous arteries must be secured, the flap drawn over the stump, and the edges brought together with adhesive plaster.

Amputation at the hip-joint. The earliest on record, is that to which Mr. Pott alludes in his works, and which is generally supposed to have been performed by Mr. H. Thompson. It was afterwards performed on a girl eleven years old, by Mr. Kerr, of Northampton, in case of hip-joint disease: it has since repeatedly been performed by Larrey, in gunshot wounds of the upper part of the thigh, and in the following manner:

Having secured both the crural artery and vein in one ligature, and placed a ligature of reserve close to Poupart's ligament, carefully excluding the nerve, he plunged a straight knife between the neck of the femur and the muscles attached to the lesser trochanter, till the knife appeared at the back of the limb, and then formed the internal flap by directing the knife downwards and inwards; having next secured the obturator and branches of the pudendal arteries, he opened the joint on the inside, by an incision through the capsular ligament, which was rendered tense by keeping the limb abducted; the ligamentum teres was next divided, and the bone dislocated; the knife was then carried round the head of the bone and trochanter, directed downwards and outwards, so as to form the external flap. The branches of the great arteries were tied as they appeared, and the flaps were brought and kept together by strips of plaster and a spica bandage.

Mr. Guthrie has performed this operation in the following manner:—The patient being placed horizontally on the edge of a table, an assistant standing on the outside of the limb, compressed the artery against the brim of the pelvis; the surgeon on the inside made his first incision four fingers' breadth below the anterior spine of the ilium, downwards and backwards on the inside of the thigh, till it terminated four fingers' breadth below the tuberosity of the ischium, opposite to where it commenced; this divided the fascia and integuments on the inside; the extremities of

the incision were then connected by an incision downwards and backwards on the outside, also dividing the integuments and fascia, this being much shorter than the first incision: the integuments on the outside were retracted, and the glutæi raised from their insertions; then placing the edge of the knife on the line of the retracted muscles of the first incision, he cut steadily through the whole of the others, blood-vessels, &c. on the inside of the thigh, taking up the artery and vein between the fingers and thumb of the left hand, until each could be drawn out with the tenaculum and secured: and cutting through the small muscles, running between the trochanters, the capsular ligament was opened, and the ligamentum teres cut through. The head of the bone was then easily dislocated, and any further connections divided; the vessels secured, the brim of the acetabulum pared close if it could be quickly done, the nerve cut short, the wound sponged with cold water, and its edges brought close together in a line from the spinous process of the ilium, to the tuberosity of the ischium, and sustained by adhesive straps, between which the ligatures were brought out.

This operation has been performed by several surgeons in France, England, and Germany, and also successfully by Dr. Valentine Mott, in the New York Hospital, in 1824.

At the knee-joint. This is an operation rarely performed and not likely to possess many advocates; when it is resolved upon, it may thus be performed according to the directions of M. Velpeau. The articular groove below the condyles being marked, a semi-circular incision may be made below the patella, opening at once into the joint; then by dividing the lateral ligaments, one after the other, with the point of the knife, it may be carried through the joint, cutting the crucial ligaments, and leaving upon the tibia the semi-lunar fibro-cartilage, being careful not to carry the knife too far back, in order to avoid the popliteal artery; this done, a flap must be formed from the muscles of the calf of the leg, by passing the knife upon the posterior surface of the bones, without touching the vessels, until an assistant can pass his thumb before the base of the flap between the bones and the flesh, in order to compress the vessels, whilst the operator divides them four or five inches below: this operation of course preserves the patella.

It only remains to add, that in all amputations at joints, it has generally been considered necessary to cut off the whole surface of the cartilage exposed, with a view to prevent any impediment to the process of union, by a secretion of synovia in the wound.—See on the Subject of Amputation—Alanson's Practical Observations on Amputation.—Cope-land Hutchinson's Surgical Observations.—Rees's Cyclopædia—Article Amputation.—S. Cooper's Dictionary and First Lines of the Practice of Surgery.—B. Bell's and Heys' Works.—Jennens' Military Surgery.—

Guthrie on Gun-Shot Wounds.—Averill's Operative Surgery.—Desault's Surgery, (translated and published in this country,) and Boyer's Works.

ANASARCA, (from *ανα*, through, and *σαρξ*, flesh.) An accumulation of serous fluid, or lymph in the cellular system. See *Hydrops*.

ANASTOMOSIS, (from *ανα*, through, and *στομα*, a mouth.) A communication of vessels with one another. See *Aneurism from Anastomosis*.

ANCHYLOSIS, (from *αγκυλῶμαι*, to bend.) A stiff joint.—See *Joints*.

ANEURISM. (*Aneurisma*; from *ανευρυνω*, to dilate.) A pulsating tumour, arising from a dilated, ruptured, or wounded artery, filled with blood; fluid in an early, and more or less coagulated in a later state. Aneurisms, admit of a primary arrangement into *true*, *false*, and *mixed* kinds, each of the two first forming subdivisions termed, the *circumscribed* and *diffused*.

I. *True Aneurism*, consists in a dilation of the coats of the artery, from disease, in which the vessel becomes thickened, cartilaginous, or ossified, the sac of the aneurism being formed by the dilated vessel itself.

A. *Circumscribed true aneurism* occurs, where the artery is only enlarged in a small portion of its course, and where the boundaries of the tumour are fixed and determinate.

B. *Diffused true aneurism*, takes place, when the dilation is more considerable, oblong in its appearance, and so gradually extended into the neighbouring parts, that its margins cannot be traced.

II. *False aneurism* is that form of the disease, where the blood escapes from a ruptured or wounded artery, into the surrounding cellular substance, forming a tumour by its effusion.

A. *Circumscribed false aneurism*; here the blood collects into one mass, distends the cellular substance, and forms a cyst with defined edges.

B. *Diffused false aneurism* is, when the blood injected copiously into the cellular substance, forms an extensive and irregular tumour in the surrounding parts, the exact limits of which cannot be ascertained.

These are the usual distinctions, made in the present day, of this formidable disease, although there are many authors who dispute their correctness; the celebrated Scarpa of Pavia stands in the fore-ground of discussion, and maintains, that aneurism only takes place, from a wound or rupture of the artery, and that the disease proceeding from dilation of the vessel must from its distinctive characters be referred to another class; and John Hunter and Sir E. Home have also decided that aneurism properly so called, cannot take place without a breach of continuity in the sides of the vessel.

The third variety, or mixed aneurism, is said to occur when the tumour of a true circumscribed aneurism bursts, and permits the diffusion of the

blood through the surrounding cellular substance ; this may be said to be the general consequence of the circumscribed true aneurism after it has existed for some length of time, owing to an ulceration produced in the coats of the artery.

A true aneurism may generally be recognised in the form of a small pulsating tumour, subsiding and re-occurring before and after pressure, or when the artery is compressed above it ; it is free from pain in the first instance, and the skin of the natural colour and temperature, but as the disease increases, the pulsations become weaker from the coats of the artery losing their elasticity, or owing to the presence of a coagulum forming over the interior of the sac ; the tumour increasing in size, occasions pain from pressure of the surrounding parts, the warmth of the surface diminishes from the small quantity of blood transmitted to the vessel below, and the skin becomes tense, thin, soft, and of a dark purple colour, the immediate preursors of a slough, which at length is thrown off, when hæmorrhage ensues, in some instances to a fatal extent, in others to a less alarming degree at the time, but equally destructive by frequent repetition.

The diminution of heat is not so frequent a symptom as the others described, owing to the anastomosing branches of the artery becoming enlarged and continuing the usual supply of blood, when the main trunk is affected by disease. If allowed to continue, until the size of the aneurismal tumour is greatly increased, œdema is produced from pressure upon the veins and fleshy parts, the bones becoming from a like cause, carious, with this singular distinction from other caries, that it is unaccompanied by suppuration, being merely an absorption of bone.

A false aneurism, presents in its early stages a small tumour, which on compression gradually disappears, and as gradually returns when the pressure is removed ; as the disease advances, pressure is no longer capable of producing a disappearance of the tumour, which becomes hard, and frequently attains a surprising magnitude, but attended with little or no pain ; from the accumulation of blood coagulated in the tumour, and its organization at different periods, it appears knotty and uneven, frequently of a purple or livid hue, and eventually terminates the life of the sufferer by mortification.

The causes of aneurism are numerous ; the true aneurismal tumour sometimes occurs without any apparent reason in individuals, predisposed as it were, to its development ; at others from violent bodily or mental injuries, arising from strains, severe exercise, excess of debauchery, grief, &c. and any circumstances tending to relax the animal fibre, and therefore weaken the arterial parietes ; or it may result in the case of exertion from the impulse of the blood, being directed against the sides of an artery with greater force than can be sustained without injury : with

regard to false aneurism ; it is generally the result of accident, from the spicule of bones in fracture, by a violent effort, and thereby rupturing the coats of a vessel, or from the carelessness of the surgeon in venesection.

Aneurisms, in general, occur more frequently in the large than in the small vessels, and hence it is evident, that the impetus of the blood in all cases where a weakness of the parietes of the artery exists, has a considerable share in their origin. The great arterial trunk, the Aorta, is subject to this disease as well as the various trunks to which it gives rise, and of these, the carotid, subclavian, axillary, brachial, inguinal, and femoral arteries, in particular.

Internal aneurism, or that form attacking vessels supplying the viscera, and only visible when by protrusion of the neighbouring organs their exact situation is manifest, forms also an important branch of investigation ; it chiefly takes place in the aortic trunk, and gives rise according to its situation to an alarming train of symptoms, producing difficulty of deglutition when pressing on the œsophagus, difficulty of respiration when situated in the immediate neighbourhood of the lungs or diaphragm, and even suffocation when compressing the trachea ; diseases of the urinary apparatus, when near the bladder, vomiting and the most distressing dyspepsia, when in the vicinity of the stomach. Previously to the application of modern science in the treatment of aneurism, little could be rationally attempted for its cure ; many cases have been relieved by a spontaneous effort of nature in the deposition of coagulum, not only filling up the sac, thereby acting as a natural plug, and preventing a further supply of blood to the tumour, but absolutely obliterating the artery above and below the disease, to the next important ramifications ; where this did not take place, the disease was left to itself, in some cases, or in others removed with the limb it affected, where this was possible, until the plan of Valsalva came into repute ; this consisted in lowering the circulation as much as possible, consistently with the safety of the patient, by repeated bleedings, and a scanty diet ; nor was it until the year 1780, that the French surgeons, enlightened by the previous discoveries of Haller and Winslow, dared to attach a ligature to the femoral artery in cases of popliteal aneurism ;—the brachial artery as a smaller vessel had been tied only a few years before ; here the ligature was established in reputation, as affording a certain remedy for aneurism, the plan of compression had been extensively pursued, both by means of direct pressure upon the tumour, and by bringing the sides of an artery together by the forceps of Assalini or instruments invented by other surgeons ; any interference with an artery except by ligature is now deservedly reprobated, but compression is still in vogue where the tumour, as in true aneurism, remains soft and yielding ; any application of it to the false

aneurism, where it remains hard and knotty is inappropriate, as tending rather to increase the chance of mortification, than to diminish the size of the tumour.

In internal aneurisms we can of course command but one description of remedy, and that precisely the same as recommended by Valsalva, and followed so extensively and successfully by Pelletan in the Hospital of the Hotel Dieu in Paris, and consisting of the most rigid antiphlogistic treatment, in frequent bleedings, restricting to small quantities of light food, applications of powdered ice or cold lotions to the tumours when visible, and the observance of silence and quietude ; in external aneurism, where compression may be tried without a risk of injury by irritation, and generally speaking, where the tumour is small, the same precautions must accompany a trial by pressure, as directed in cases of internal aneurism ; when this mode of cure is attempted, a firm compress should be applied over the tumour, confined by a bandage extended some distance above and below it, sufficiently tight to command a strong pressure, but not so much as to retard the whole circulation of the member ; the bandage and compress may frequently be moistened with a cool lotion, the usual antiphlogistic measures pursued to the necessary extent, and the individual kept as quiet as possible.—In all cases of aneurism, however, both in those where the milder means have been used without success, and where the nature of the disease may have forbidden their employment, the use of the ligature is imperiously demanded ; before the operation upon the femoral artery for popliteal aneurism by John Hunter, the usual course pursued was to cut into the tumour, remove the extravasated blood, and tie the artery both above and below it, but modern practice rejects this mode, in following the example of that great master, in securing the artery between the tumour and the heart, leaving the former to the process of gradual absorption when the channel through which its support was derived, has been obliterated.—It may occasionally happen in aneurisms, and especially in those about the head and neck requiring the obliteration of the carotid artery, that the tumour having increased to an enormous magnitude, may present unusual obstacles to the passage of a ligature round the vessel at the cardiac side of the tumour : in addition to other evidence, there is a most interesting case related by Dr. Bushe, of New York, proving the possibility and propriety of tying the artery on the distal side of the aneurism, with the same probability of success. Several instruments have been invented for the purpose of compressing the artery above the aneurism, such as the compressor of Assalini, the pioneers of Percy, the presse-artere of Deschamps, and the serre-nœud of Desault, &c. but they have fallen into disuse, as well as the old customs of loosening the ligature some hours after its application, and the application of a cylinder of linen be-

tween the artery and the ligature ; the distinguished success that attends the majority of cases, where the simple operation of cutting down to the vessel and tying it, is performed, is sufficient to recommend it to general adoption. The former plans of dividing an aneurismal artery after the application of two ligatures, and the employment of the ligatures of reserve, as they were called, have also been discontinued.

VENOUS ANEURISM, or ANEURISMAL VARIX. This term is applied to a tumour, arising from a direct communication, formed between a large vein and a subjacent artery. It is generally the result of venesection when improperly performed, the vein being transfixed, and the artery under it wounded. Scarpa describes two circumstances as necessary for the production of this varicose aneurism. 1st. That the incisions in the vein and in the artery must exactly correspond ; 2d. That the upper wound of the vein must heal, while the lower one, and the puncture in the artery must remain open, and communicate so readily, that the arterial blood finds greater facility in entering from the artery into the vein, than in being effused from the artery into the surrounding cellular substance. We may generally be aware, that the artery is wounded, by the blood flowing with a jerking force, and the difficulty of restraining it after venesection ; when the upper wound of the vein is closed, (and the basilic vein is perhaps engaged more frequently than any other, in this affection,) a general swelling at the bend of the arm, and extending towards the wrist ensues, the vein being particularly dilated ; by the application of the ear on the stethoscope to the tumour, a pulsating jarring motion is experienced, together with a peculiar hissing sound, occasioned by the rushing of the blood from the artery into the vein ; the veins empty by pressure and lose the varicose appearance, which however immediately returns, directly the pressure is discontinued. Varicose aneurism differs from the common false aneurism of an artery, solely in the circumstance of an opening existing in the lower part of the vein, which receives the arterial stream, and thereby prevents its diffusion in the neighbouring parts. It is of no little consequence, to distinguish between these two affections, especially, when it is considered that the false aneurism requires immediate attention, and that the aneurismal varix is comparatively insignificant ;—the nature of the accident, the appearances described, and the hissing noise, will hardly permit a mistake to arise.

Where the tumour is small, and especially in thin persons, at an early age, compression may be tried with advantage, but where the tumour has advanced to a considerable size, any pressure will only expose the patient to the danger of a complication of the disease with a false aneurism ; the wisest course undoubtedly is to abstain from interfering, unless, but which is not probable, the tumour increases to an alarming size, when the artery may be secured above. If immediate aid be given, after the

accident, a bandage and graduated compress, will fulfil every reasonable expectation of cure.

ANEURISM FROM ANASTOMOSIS. This is a term applied by the late John Bell of Edinburgh to a species of aneurism resembling the *Nævi Materni*, consisting of a pulsating tumour, made up of a congeries of vessels and the cellular substance, and which the above author compares to the gills of a turkey-cock, or the substance of the placenta. The irritated and incessant action of the arteries, fills the cells with blood, and from them it is re-absorbed by the veins; the size of the swelling is increased by exercise, drinking, emotions of the mind, and all causes which accelerate the circulation.

This affection may also be occasioned in adults by an accidental cause, increasing from an appearance like that of a small pimple to a formidable disease; being composed as above of a mutual enlargement of smaller arteries and veins, the tumour grows slowly, and as it increases in size, the throbbing becomes more evident. Small sacs of blood are formed in the cellular substance, which burst from time to time, and occasion much weakness by a profused hæmorrhage. In the female, the bleeding from an aneurism from anastomosis is sometimes vicarious, of the menstrual discharge. This is a disease that in general should not be interfered with; pressure will invariably aggravate it, and occasion a more rapid development; when, however, the bleeding is so frequent as to distress the system, an operation may be justifiable: one case is recorded by Mr. Abernethy, wherein pressure was successfully applied, but in the hands of most surgeons, and under the generality of cases, it has been attended by a failure. The prudent plans to be pursued, are the complete removal of the whole disease, or tying the chief artery, from whence its nourishment is derived. Mr. Travers, of London, tied the carotid artery for a case in which the eye was considerably protruded from the orbit. Mr. Wardrop cautions the surgeon when *cutting out* the tumour to avoid *cutting into its substance*, by which a violent hæmorrhage would be occasioned. The application of caustic, as formerly recommended, is now dismissed from practice, and in fact the mode adopted at the present time is simply this, to leave the aneurism untouched as long as the safety of the patient is not compromised, and when it is necessary to interfere to extirpate the whole of the tumour.

On the subject of aneurism, consult the Surgical works of Hunter, Everard Home, Scarpa, Wardrop, and Abernethy: the Surgical Essays of Cooper and Travers, Hodgson on diseases of arteries and veins, John Bell's Principles of Surgery, and Charles Bell's Operative Surgery. *Les Œuvres Chirurgicales de Desault par Bichat.*—*Pollotian's Clinique Chirurgicale*, &c. &c.

ANGINA PECTORIS, (from *αγχω*, to strangle, and *pectus-oris*,

the breast, or thorax.) A disease frequently associated with, but not directly depending upon, disorganization of the heart. It is described by Dr. Parry under the name of *Syncope Anginosa*, and as arising exclusively from ossification of the coronary arteries of the heart; but experience has proved the incorrectness of this opinion, many cases having occurred where an examination post mortem, has discovered the coronary arteries in a state of ossification, without having given rise to one thoracic affection during life; while on the other hand, the most intense symptoms have prevailed from cases of enlarged liver (as recorded by Dr. Latham) or from other causes, without the structure of these arteries being affected in the slightest degree; hence we may rather consider this disease as a chronic functional derangement of the thoracic organs, without precisely limiting its origin; it is characterized by violent paroxysms of pain and oppression in the chest, in or near the region of the heart, occurring after exercise, particularly on ascending an eminence, or eating a hearty meal, and it is also produced by any strong emotion of the mind, as anger, grief, excessive joy, &c.: the pain is violent and constrictory, accompanied by a sense of suffocation, and referred to the sternum, a little inclined to the left side, shooting from thence to the left breast, and terminating at the elbow, or insertion of the deltoid muscle: the right side being similarly, but less frequently affected. The agony experienced is occasionally so acute, as to excite the apprehension of immediate death, and as the disease advances (constant cough and expectoration supervening) the paroxysms become more frequent, attacking the sufferer in any position, and at any time, until at length, one, more than usually violent, terminates his existence: during the continuance of an attack, the face and extremities are bathed in perspiration, the pulse becomes frequent and irregular, and the powers of sense and voluntary motion are for a time, lost. The design of medical treatment is to afford relief during the paroxysm, and if possible, to prevent its recurrence by a control of the circumstances occasioning it; to effect the first object, small quantities of blood may be withdrawn, either from the arm, or from the cardiac region, by cupping, and opium, and either may be administered; to counteract the disposition to the disease, every possible attention must be paid to diet and regimen, avoiding the use of fermented liquors, removing from observation all objects having a tendency to excite the emotions of the mind, and enjoining the most perfect tranquillity: the use of aromatics, bitters, gentle laxatives, and opiates, (such as hyoscyamus and opium when the rest is disturbed,) must be persevered in; a seton may also be introduced inside of each thigh, or a blister kept open in the same situation, in accordance with the plan of Dr. M'Bride, who found such practice of singular efficacy in this complaint.

ANGINA. Vnde Cymanche,

ANGUSTURA BARK. (*Cortex Cuspariæ.*) Tonic, stimulant, aromatic, and febrifuge, in doses of from v. to xx. grains.

Incompatible with the sulphates of iron and copper, the salts of silver, mercury, lead, and antimony, potass, infusion of galls, and the yellow cinchona bark.

Official preparations. Infusion of angustura. (*Infusum Angusturæ.*) $\overline{3}$ i. to $\overline{3}$ ij.

Tincture of Angustura. (*Tinctura Angusturæ.*) $\overline{3}$ j. to $\overline{3}$ iij. The operation of both preparations the same as the bark.

ANIMATION suspended. See *Asphyxia*.

ANISE. (*Anisum.*) The seeds, used as a stimulant or carminative, in dyspepsia, and the tormina of infants—dose, ad libitum.

Official preparations. Oil of anised. (*Oleum anisi.*) \overline{m} iij. to \overline{m} x.

ANODYNES. Medicines given to lull pain, and procure sleep. See *Narcotics*.

ANTACIDS. Medicines which destroy acidity, acting chemically, by combining with and neutralizing an acid in the stomach or intestines. The fixed and volatile alkalies, limo water, prepared chalk, and the carbonate of magnesia.

ANTHELMINTICS. (*αντι*, against, and *ελμινς*, a worm.) Those remedies procuring the evacuation of worms from the intestines, whether acting mechanically by the sharpness or roughness of their particles, by their bitter quality or cathartic influence; of the first description, are the powder of tin, (*pulvis, stanni*), cowhage, (*Dolichos Pruriens*); of the second, gentian, quassia, tobacco; and of the third, mercurials, jalap, aloes, and turpentine.

ANTHEMIS. *Anthemidis Flores.* See *Chamomile*.

ANTHONY'S ST. FIRE. See *Erysipelas*.

ANTHRAX, (from *ανθραξ*, a burning coal,) commonly called carbuncle. A hard, circumscribed, inflammatory tumour, sometimes occurring as a primary disease, at others, as a secondary symptom. In the first instance, it generally takes place in debilitated individuals, whose constitutions have been worn down by excess, or long infirmity, and most commonly on the neck, back, or loins; it commences with great heat and pain, in a spot, where a few small vesications are soon observable, beneath which, a deeply seated and hard tumour may be felt; rapidly increasing in growth, with an aggravation of the heat and pain, it becomes of a dark red or purple colour, with one or more small blisters upon its apex: these occasioning an intolerable itching, are frequently scratched off, when a brown sanies is discharged, and an eschar formed, and sometimes a little black slough appears in the middle. The progress of anthrax to a gangrenous state is generally quick, dependent, however, on the state of the patient's age and strength. The constitu-

tional symptoms, are restlessness, chilliness, profuse perspirations, and frequently delirium; loss of appetite, nausea, vomiting, low pulse, turbid urine, &c. The prognosis of the physician must be governed by the state of his patient's constitution, his age, and the magnitude and situation of the tumour.

Anthraxes may be numerous in one individual, occurring in various parts of the body at the same time, and varying, in size, from one to twenty-four inches in circumference. In all those cases where the age and debility of the patient do not forbid the hope of recovery, the treatment is exceedingly simple; the grand object is to make a free and early crucial incision into the tumour, in order that the sloughs may be readily discharged, encouraging their escape by emollient or fermenting poultices, frequently renewed; when the sloughs have separated, and the cavity is in a granulating state, it must be dressed with pledgets of lint and a mild ointment.

In France, the actual cautery is employed in destroying the prominent parts of the tumour; and in America a practice has been pursued, sanctioned by the high authority of Dr. Physic, of Philadelphia, of treating this disease with emollient poultices, until a sanies is discharged, when the surface is freely covered with a caustic alkali, from the effects of which the most favourable results have been obtained. The internal treatment should consist of a liberal supply of tonics and wine, (when not contra-indicated by the presence of fever,) and a close attention to the state of the bowels.

Anthrax, or carbuncle, has been divided into benign and malignant varieties; the latter occasionally running into the pestilential kind; the first is usually met with in practice, and as such, has been above described; the last occurs in severe typhoid fevers, and the plague, to which subjects the reader is referred for further information. See Bloomfield's *Chirurgical Cases*, Boyer's *Surgery*, S. Cooper's *Works*, Dr. Physic's *Case of Carbuncle*, with remarks of the use of caustic in that disease, in the 2d vol. of the *Philadelphia Journal*, of the Medical and Physical Sciences.

ANTIMONY. *Antimonium*. See *Metals*.

ANTIPHLOGISTIC, (from $\alpha\nu\tau\iota$, against, and $\phi\lambda\epsilon\gamma\omega$, to burn.) The plan pursued in medicine, to oppose an inflammatory process, or weaken the animal system, by venesection, cathartics, diuretics, diaphoretics, diluents, the warm bath, &c. &c.

ANTISORBUTICS, (from $\alpha\nu\tau\iota$, against, and scorbutus, the scurvy.) That class of medicines, as the vegetable and mineral acids, nitre, &c. or that plan of diet in the form of fresh fruits or vegetables, or in short, of all these substances to the composition of which oxygen contributes largely, administered for the relief of scurvy or scorbutic diseases.

ANTISEPTICS. (Antisepticus, from *αντι*, against, and *σηπω*, to putrefy.) Substances which resist putrefaction, and reduced to four orders. 1. Tonic antiseptics, as cinchona, cusparia, chamæmelum, &c. 2. Refrigerating antiseptics, such as acids: 3. Stimulating antiseptics, wine, alcohol, ether, and musk. 4. Antispasmodic antiseptics, as camphor, opium, and assafœtida.

ANTISPASMODICS, (from *αντι*, against, and *σπασμος*, a spasm.) Medicines tending to relieve spasmodic action, and arranged in three orders. Proper antispasmodics, musk, castor, ammonia, assafœtida, galbanum, valerian; narcotic antispasmodics, ether, opium, and camphor; tonic antispasmodics, the preparations of copper, zinc, mercury, and cinchona.

ANUS. The fundament, or lower extremity of the rectum, so called, is subject to various affections, occurring in every stage of existence, from infancy to old age; which may be thus classed: I. Imperforate anus. II. Abscesses and Fistula of the anus. III. Prolapsus—and IV. Artificial anus. We occasionally find, in some infants, the place where the rectum ought to open externally, entirely closed by a fleshy adhesion, which is perhaps not discovered until some days after birth: no time can here be afforded for deliberation, as the immediate safety of the child is at stake; the part producing the obstruction, is generally of a dark coloured or livid hue, from the pressure of the meconium upon it, forming a small prominence that subsides under the fingers; into this a transverse incision must be made, and a small tent of lint afterwards introduced, to prevent its closure, or a small piece of bougie may be worn for a week or two, withdrawing it occasionally. When no outward appearances mark the exact spot, where the anus ought to be, greater difficulties attend the operation; an incision must be made in the proper direction of a natural opening, considerably more enlarged than the former, and continued if the rectum do not appear above the wound, directly backwards, in order to avoid the bladder, or the vagina in the female; using the fore finger as a director, this incision must be continued until the gut is discovered, or if it be situated too high up to be reached, as far as the finger will extend, when the knife being withdrawn, a middle sized trochar must be plunged into the intestine, or towards the spot it ought to occupy; the canula being retained in the wound, and secured there, by tapes passing round the body; gentle glysters should be frequently administered to prevent the accumulation of any hard fœces, a bougie or an elastic gum catheter introduced, and worn for a week or two, and the child kept as quiet as possible. In some cases, the anus although not closed, is yet so small, that the introduction of a bougie or tent, and sometimes a slight incision is necessary, before a free outlet for the fœces is established,

ABSCESSSES OF THE ANUS. An erroneous but very general impression has prevailed, that the term of fistula may be applied to every case where matter is discharged from the neighbourhood of the anus. This region in common with others, is liable to all the effects of inflammation, and to the formation of regular abscesses, of a mild suppurative form, or of plegmonous, and sometimes of an erysipelatous character, requiring the usual treatment, and which may be shortly described, as consisting in a moderation of existing symptoms, in advancing the suppurative process, in discharging the matter at a proper time, and in preventing a recurrence of the disease; the attendant symptoms are sometimes violent, and rapidly reduce the patient to a very low condition, and where this occurs during an attack of erysipelatous inflammation, it is necessary to proceed to the opening of the abscess at once, without waiting for the suppurative stage, in order to prevent the slough of the cellular membrane; in other cases, vonosection, and the usual antiphlogistic treatment must be practised, while suppuration is promoted by emollient poultices and fomentations; in the discharge of the matter, the opening must be sufficiently large to permit its ready escape, and allow the introduction of the proper dressings afterwards; the final cure of the disease, is best accomplished, by permitting nature to exercise her own power of reparation, instead of obeying the precepts of the old practitioners, who filled the cavity of the abscess with irritating or perhaps caustic applications, serving as a complete obstruction to her efforts; if any dressings be introduced into the abscess, they should be of the lightest quality and smallest quantity, and totally removed in a few days, when the sides will collapse, and the best opportunity be afforded for the obliteration even of the smallest sinus. It will, however, frequently happen, from peculiarities of constitution, from the long continuance of an abscess, in these parts, or from early improper treatment, that although by judicious measures a large cavity may be nearly filled by granulations, a small sinus still exists, continuing the discharge of a thin and gleety matter, which baffles all our attempts to cure by the plan already detailed.

The manner in which the contents of an abscess are discharged, gives rise to the denomination of the complaint; thus, when it is merely external, it is called a blind external fistula; when only internal, having an orifice in the gut, blind internal fistula; and when both these varieties are united, the term of complete fistula is applied. However wide the original distinction may be between abscess and fistula, it is certain, that the former may frequently be converted into the latter by improper treatment, and thus form one description of the disease, properly called fistula, and which consists of a deep hollow sinus, with parts so hardened or diseased as to prevent any union in that state, and frequently dis-

charging a thin and discoloured fluid. It would appear that neglect or unskilful treatment have established a new disease, in the old sinus of an abscess, which losing its former sensibility, degenerates into a positively local affection, difficult to subdue, and most disagreeable in its nature.

The treatment necessary either for that description of abscesses, termed blind internal and external, or complete fistulæ, that is, for those affections more correctly looked upon as fistulous sores, than proper fistulæ, is nearly the same as that required, when the sinus in all its characters deserves the appellation; the great aim of the surgeon is to bring together the sides of the abscess or fistula; this is of difficult accomplishment, even when the surface of the rectum is not eroded, and when a communication is formed with the gut, impossible, unless with the assistance of the knife in laying the two cavities in one. Much argument has been wasted in the choice of definite and relative terms, in characterizing the various peculiarities that constitute a true fistula, but leaving these speculations, we cannot too warmly insist upon the necessity of an uniformity of practice, either as regards fistulous sores, the result of ill-conditioned abscesses, or the direct fistulæ: if, then, we discover either of these circumstances, the plan to be pursued is the following:—With a probe pointed bistoury, introduced into the sinus as far as it will extend, through the erosion of the gut, if existing, and to the surface of the rectum if only denuded, the extremity of the index finger passed into the anus, must be met, and by one incision, withdrawing the knife and the finger at the same time, the two cavities of the sinus and intestine laid into one: where the intestine is not perforated, the least pressure propels the bistoury, through its tender coats, and where there is no outward opening, the only orifice being within the bowel, the additional care is merely required, while the finger is engaged as before, to open the sinus as well as its situation can be ascertained, and carry the bistoury on, to fulfil the previous object. A dossil of lint should be afterwards introduced between the lips of the incision, to keep the wound from prematurely closing, as well as to prevent hæmorrhage, and the rest of the sore dressed with soft lint; the dossil should be allowed to remain until loosened by the suppurative process, and light and easy dressings be continued until the parts heal; this mode of procedure will obviate any necessity for the application of escharotics, which indeed are rarely admissible in this affection, and are seldom employed by the experienced surgeon. The application of a ligature, passed through the sinus is now rejected from practice, and deservedly so.

ARTIFICIAL ANUS. This loathsome malady is the consequence of a wound of the intestine through the abdomen. It may either take place from an injury occasioned by a cutting instrument, or from spha-

celation of the intestine in strangulated hernia ; the only chance of the patient's safety in preventing an extravasation of the fœces into the abdominal cavity is to bring the upper portion of the intestine to the external opening, and permit their discharge in that situation. For the mode of relieving this affection, if possible—see *Hernia*.

PROLAPSUS OF THE ANUS. *Prolapsus Ani.* There are three varieties of this disease. 1st. When the whole rectum and tunics fall down. 2d. When the inner coat only descends. 3d. When the upper portion of the gut descends into the lower, forming a volvulus or intussusception.

The affection may originate from circumstances tending to relax and weaken the parts, which retain the rectum, or its inner membrane, in its situation ; from various kinds of irritation and pressure on the bowel itself, or from any disease or irritation, affecting the neighbouring parts. Hence, a prolapsus may be caused by long habitual crying, violent coughing, sitting long at stool, hardened and dry fœces, and much effort in expelling them, obstinate diarrhœa, dysentery, chronic tenesmus, various diseases of the rectum, the abuse of aloetic medicines, and emollient clysters, hæmorrhoids, and excrescences, the efforts made in parturition, stone in the bladder, paralysis of the sphincter and levatores ani muscles, and by prolapsus vaginæ. In most of the cases of prolapsus, the symptoms are not very severe, but occasionally we find it accompanied by severe constitutional disturbance, the swelling being large and giving exquisite pain ; whenever it is accompanied by strangulation of the gut, the same consequences may be apprehended as in strangulated Hernia. The indications are to restore the part prolapsed, to effect the retention of the bowel, when restored, and to remove the causes that have led to its protrusion. The part should be returned immediately with the finger, or by gentle pressure with a warm cloth held on the palm of the hand ; if it has been protruded for some time, and much difficulty is experienced in replacing it, the application of leeches, fomentations, or cold washes, is advisable ; and if much irritation prevail, it may be prudent to abstract a few ounces of blood by venesection ; when a spasmodic resistance prevents its return, the warm bath, an anodyne poultice, and the internal use of opium are demanded ; and if it is still unyielding, and the symptoms become of a more alarming character, the particular situation of the stricture must be examined and divided ; the situation of the patient may be altered, by placing him on his hands and knees, in returning the gut, when the above applications have been employed. After the reduction, the T bandage and a compress should be applied ; and when no great irritation prevails, an astringent lotion occasionally thrown into the rectum, to give the parts tone, and prevent a relapse. The bowels should be carefully attended to, and kept open by mild aperients, avoid-

ing aloetic purges, and tonics and alteratives may at the same time be administered to strengthen the system. When the bowel is returned, it is proper to introduce the finger into the rectum, in order to ascertain that no intussusception exists; when the complaint is of frequent recurrence, it is advisable to place a portion of an elastic gum bougie within the rectum, by which the protrusion will be prevented, and the gut have a fairer opportunity of recovering its powers. The inner membrane of the rectum has been sometimes removed by ligature, but the plan of Dupuytren is perhaps preferable, as leading to less constitutional irritation; this surgeon removes the internal membrane of the rectum by taking hold of the projecting folds with a pair of forceps, and cutting them off with curved scissors, a plan that was formerly pursued by the late Mr. Hey, of Leeds.

The prolapsus of the bowel so common in children, may frequently be prevented, by making them sit on a high close-stool with their legs hanging down, at the same time keeping their bowels in proper order, for which purpose the castor oil is one of the best medicines. The infusion of oak bark and lime water, may afterwards be used for an astringent injection.

Intussusception may be occasioned in the higher parts of the bowels as well as at the rectum, and may therefore be more appropriately treated of under another head. See *Intussusception*.

Refer to S. Cooper's *Surgical Works*, Hennens' *Military Surgery*, Lawrence's *Treatise on Hernia*, &c.

AORTA. Diseases of. See *Arteries*.

APHTHA. (from *απρω*, to inflame.) See *Thrush*.

APOPLEXY. (Apoplexia from *απο*, and *πλησσω*, to strike or knock down.) A disease of the sensorial system, excited into action by a morbid condition of the sanguineous and respiratory functions, and particularly by those causes that induce a compression of the brain, either from the rupture of a vessel, or the effusion of serum.

Apoplexy displays itself under two great divisions, termed sanguineous and serous, but as these are not sufficiently expressive of the condition of the brain, in this disease, the distinctions of Dr. Good, named the *entonic* and the *atonic states*, may be preferred. In the former, the attack is generally sudden, the sufferer falling down without sense or motion, and lying like a person in a deep sleep; the inspirations are in the first instance deeper and slower than usual, but rapidly increase, becoming intermittent and convulsive, accompanied by stertor or snoring; the eyes are red and turgid, and occasionally blood bursts from the nostrils; frothy saliva accumulates about and is blown from the lips with considerable force, the skin is covered with a clammy sweat, the pulse is full and hard, and the face flushed and distorted; the cornea dull and

glassy, and the pupil dilated; in those cases, however, when the limbs are in a state of spasm or convulsion, the muscles of the face violently affected, and the teeth firmly closed, the pupil becomes contracted almost to a point; the paroxysm varies in duration from eight to forty-eight hours, or even longer, and terminates either fatally or in a paralysis more or less general; an instance may perhaps occasionally occur of so slight an attack, that the constitution apparently recovers from its effects; but the above description rather applies to the most frequent as well as the most severe form of the disease. The hemiplegia that so frequently follows, usually takes place upon the opposite side of the body, from that of the brain in which the congestion is found upon examination after death, to have taken place; seeming to show, as Dr. Baillie expresses himself, that the right side of the body derives its nervous influence from the left side of the brain, and vice versa. It is a rare circumstance for some of the turgid vessels of the brain not to be ruptured in this form of the disease, and the part where the rupture usually occurs is in the medullary substance, near the lateral ventricles, which cavities generally contain a quantity of extravasated blood.

Tonic Apoplexy, or that form usually regarded as the serous, is more the disease of age and debility than the former, and rather the result of vascular weakness, than of vascular distention; it may arise either from the rupture of a vessel from the weakness of its walls, or from an effusion of serum into any of the cavities of the brain, occasioned by the feeble action of the excrement vessels, whether exhalents or absorbents; thus it will appear, that the term serous apoplexy is objectionable when applied only to this variety of attack, inasmuch as an effusion of serum, is not essential to its production; as a disease of a constitution infirm by nature, or enfeebled from a variety of causes, it may arise either from an effusion of blood when it is actually sanguineous, or of serum when it is serous apoplexy, and hence the propriety of considering it under its present designation denoting a want, in opposition to the tonic variety, signifying an excess of action. Tonic apoplexy is not so sudden in its attack as the tonic, and is usually preceded by pains in the head, sickness of stomach, vertigo, occasional fits of absence or forgetfulness, and a frequent and oppressive sense of weariness and drowsiness; on the approach of the paroxysm, syncope occurs, the countenance being pale and sallow, but at the same time full and bloated; the pulse weak and compressible, and the breathing heavy and laborious, although unaccompanied by stertor; spasms occasionally succeed, but not so frequently as in the former variety. The duration of the fit varies, and if a partial recovery even ensue, it is very liable to be followed by an early relapse, and is generally succeeded by hemiplegia, or some other form of paralysis. From the milder character of symptoms, it might be ima-

gined that atonic was less alarming than entonic apoplexy, but when the greater debility of the system is added to them, it becomes the more unmanageable malady of the two. In forming a prognostic, regard must be paid to the special character of the disease; atonic apoplexy is more dangerous than entonic, on account of the exhausted state of the system, and the slight assistance nature can afford in rallying it; in other respects, our hopes and fears must be governed by the violence of the symptoms in both varieties.

Treatment. In those constitutions in which apoplexy may reasonably be dreaded, or in the approach of those symptoms that have been alluded to, as ushering in its attack, apoplexy may frequently be warded off by bleeding, purgatives, perfect quiet, and in the entonic variety, by a reduced regimen; it is necessary, however, to pursue a cautious system of depletion and reduction, in cases of debility or atonic apoplexy, and cupping glasses may be preferred to venesection as well as the mild laxatives to drastic purgatives; but when the paroxysm actually takes place, or the symptoms of oppression are unequivocal, the first aim must be to relieve the system either by local or general bleeding in this as well as in the entonic stage. The first care of the physician when called to a case of apoplexy, should be directed in removing the patient to a situation, where cool air may be freely admitted, in placing him in a position that least favours the determination of blood to the head, in relieving him from every ligature about his person, and in placing his legs and feet in warm water, and rubbing them with stimulating applications; these means are applicable to both varieties of apoplexy; the most effectual remedy, blood-letting, is subject to modifications in degree according to the nature of the attack. In *Entonic Apoplexy* general and local bleeding should be immediately practised, by venesection, opening the jugular vein or temporal artery, or applying the scarificator and cupping glasses to the back of the neck; the quantity of blood withdrawn must depend on the effect produced, and may vary from two to eight pounds, abstracted in a very few hours.* Dr. Abererombie questions the propriety of disturbing the jugular vein, on account of its inferior use in relieving the vessels of the brain, and recommends the selection of the temporal artery in preference, together with copious bleeding from the arms. Purgatives form the next resource, a mixture of calomel and jalap answering in the first instance, the action being maintained by colocynth or the sulphate of magnesia; the croton oil may also be advantageously administered, especially in those cases, where it is extremely difficult to introduce a quantity of medicine in solution into the stomach;

* I have known upwards of one hundred ounces of blood taken from the arms, before an abatement of the symptoms was produced, and in the space of four hours.—*Editor.*

three or four drops of this oil may be suspended in mucilage, and conveyed into the stomach by an elastic tube, however great the difficulty of swallowing; strong purgative injections of the sulphates of soda or magnesia should also be forced up the rectum, in order to expedite the action of the medicines administered by the mouth; emetics were formerly in vogue, during the paroxysm of apoplexy, but are now deservedly exploded; the straining produced by their action, tending to aggravate the symptoms, so strongly demanding relief. Cloths dipped in cold water or vinegar, and the application of pounded ice to the head, complete the list of remedies; all stimulants, and cordials so strongly recommended by ancient writers, should be abstained from, and even the use of blisters and sinapisms to the head and extremities forbidden, as affording little service, at the expense of considerable irritation.

In atonic apoplexy, it must ever be remembered, that although vascular debility may be its cause, yet that compression is produced, from the effusion of blood or serum, inducing a train of symptoms, calling upon depletion for relief; in the mode in which this is afforded, caution is certainly necessary, as the system already so weakened will not bear an extensive loss of blood; if the use of the lancet be objected to, cupping must be resorted to instead, and a moderate quantity of blood abstracted; the milder class of purgatives, such as rhubarb, senna, the neutral salts, &c. must be administered, and diaphoresis may be promoted, by the use of antimonials, if they do not occasion vomiting. External and internal stimuli have been recommended by the generality of practitioners, in this variety of the disease, but Dr. Abercrombie is justly cautious in their use, and sedulously recommends if they be exhibited after the conclusion of a paroxysm, that the patient should be restricted to a spare diet, and subjected to frequent evacuations; during the fit, however, a careful use may be made of stimulants, such as blisters to the feet, electric shocks passed through different parts of the body, and when the coma is of long continuance, small quantities of ammonia or camphor may be administered internally.—See Dr. Mason Good's Works, edited by S. Cooper—Dr. Gregory's Practice of Physic—Abercrombie's Diseases of the Brain—Dr. Armstrong's Works, and others.

APPETITE, CANINE OR INSATIABLE. (*Bulimia.*) Perpetual desire to eat, which if not indulged, is apt to produce fainting. The urine and fæces, are not much increased, but an immense exhalation from the skin, relieves the system from the recrementitious part of the aliment; the real causes of this disease are imperfectly understood; whether proceeding from an excess of acidity in the stomach, from a superabundance of acid in the gastric juice, from undigested sordes, or the presence of worms, or arising more from monstrosity than disease. A variety of remedies have been proposed for its cure; some of a re-

volting nature, and calculated to produce nausea and disgust, as oils, fats, large quantities of boiled eggs, and even pounded shells; some of a sedative character, to restrain the excitability of the stomach, as opium and tobacco; and others, with far more reason for their exhibition, as tending to check any superabundant and morbid secretion, such as emetics, cathartics, and tonics, (of the last class, the preparations of bismuth in particular.) The application of a blister to the region of the stomach, the restriction to a plain and nourishing diet, the restraining from food except at stated periods, added to an occasional recurrence to the last description of medicines, form the most rational plan of treatment for this disgusting malady. When it is incapable of relief, life is seldom of long duration, the frame becomes gradually weakened by depraved indulgence, marasmus and hectic succeed, and destroy.

ARMORICÆ RADIX. (*Horse Radish Root.*) The root of the *Cochlearia Armoracia*; class, *Tetradynamia*; order, *Siliculosa*. Stimulant and diuretic, in scorbutus, rheumatism, and dropsy, and locally in hoarseness, from relaxation of the uvula, &c. \mathfrak{z} i. to \mathfrak{z} iij. of the infusion, three times a day; of the compound spirit, (*Spiritus Armoracæ Compositus*), \mathfrak{z} j. to \mathfrak{z} iv.

AROMATICS. (*Aromaticus*, from *ἄρωμα*, an odour.) A class of medicines of agreeable smell and flavour, given as stonachics, in weakness of the digestive faculties and flatulence, and also to conceal the nauseous taste of more efficient remedies. Cinnamon, cloves, cardamoms, caraway, cascarilla, &c.

ARTHRITIS. See *Gout*.

ARROW ROOT. (*Maranta Arundinacea*.) Class, *Monandria*; order, *Monogynia*. The starch prepared from this plant or Indian arrow-root, procured from the West India islands; a highly nutritious article of food, and easy of digestion.

ARTEMISIA ABSINTHIUM. *Common Wormwood.* A plant of the class *Syngenesia*; and order, *Polygamia Superflua*. Tonic, antiseptic, anthelmintic;—doses, in substance, \mathfrak{D} i. to \mathfrak{D} ij. daily; in infusion, \mathfrak{z} iv. to \mathfrak{z} xij. three or four times a day.

Incompatible with the sulphates of iron and zinc, and the super-acetate of lead.

ARTERIES. *Diseases of.* See *Heart and Arteries, diseases of*.

ARSENIC. See *Acids Arsenious*.

ASCARIDES. See *Worms*.

ASCITES. See *Dropsy*.

ASPHYXIA, (from *a* privative, and *σφυγίς*, a pulse,) is that state of body, when the action of the heart is suspended, and the head and arteries have in consequence ceased to act. It may be occasioned by several causes, of which *submersion* or *drowning* is perhaps the most com-

tion; asphyxia in this case, arises immediately from suffocation, or a total obstruction to the respiration, not as formerly supposed by the admission of water to the lungs, but solely from a spasm of the muscles of the glottis upon the approach of the fluid, and which closes its rima as completely against the entrance of air, as if a cord were tightened round the throat; in the old idea, that a considerable quantity of water, had reached the lungs, the unfortunate patient was formerly rolled in a barrel, held up by the legs, and treated with a degree of violence totally unjustifiable, and rather calculated to hasten his departure from, than to recall him to the world; in dissection, no water has been discovered in the lungs, and very little even in the stomach of individuals who have been drowned, the spasm before alluded to, not only preventing the descent of fluid into the larynx, but into the esophagus also. In asphyxia from drowning, the face is livid, and the vessels turgid, the limbs in a state of flaccidity, and if death occur, the lungs are found gorged with blood, while the vessels of the brain are free from distention. If the body be found within five minutes, recovery is comparatively easy, after a quarter of an hour uncommon, and if more than twenty minutes elapse, nearly hopeless.

Treatment.—The sufferer should be conveyed, carefully and speedily, to the nearest house, and placed in a strong light, near a fire if the weather be cold, with the head and shoulders somewhat elevated; the room being cleared of all but the necessary assistants, five or six in number, the body should first be wiped dry, and then submitted to the following treatment: Apply warm cloths, bladders or bottles filled with hot water, bags of heated sand, or hot bricks wrapped up in flannel, whichever may be the most convenient, to the stomach, soles of the feet, thighs, and axillæ; rub the surface of the body with stimulants, such as the volatile ammonia, or spirits of turpentine, and bestow frequent friction with the hand upon the legs, thighs, and arms; artificial respiration is, however, the sheet-anchor to which we must trust; if the proper apparatus for inflating the lungs be not at hand, a pair of common bellows adroitly managed will tolerably supply the deficiency, but from the difficulty of forcing the air down the larynx, by a tube introduced into the mouth, and the liability of its passage into the esophagus, although pressure is made on the thyroid cartilage to close that cavity as much as possible, it is always advisable to introduce a silver tube (a catheter will answer the purpose) into the larynx, and attach it to the bellows; a regular supply of air can thus be furnished to the lungs, closing the mouth and nostrils with the fingers, until the chest becomes inflated, when they may be removed, and the thorax pressed down as in the act of expiration; this must be several times repeated, some of the assistants continuing the application of warmth to various parts of the body. An extraordinary

difficulty may sometimes arise to the practice of artificial respiration, from fixity of the teeth, or strong contraction of the muscles of the jaw, rendering the introduction of a tube impossible, and in such case, the propriety of the operation of Bronchotomy must be immediately taken into consideration. The fauces and nostrils may be occasionally irritated by a feather, stimulating injections thrown up the rectum, and as soon as the patient can swallow, small quantities of warm wine or cordial administered; if an electrifying machine can be quickly brought into action, a few shocks may be sent through the chest, and the warm bath may also prove a valuable auxiliary. With the first symptoms of returning animation, such as sighing, gasping, or a slight quivering of the limbs, every previous effort should be redoubled; existence yet hangs on a thread, and the slightest want of care may snap it. Attempts at resuscitation must not be too hastily abandoned; if four or six hours devotion to the cause of humanity be insufficient, employ ten, and you may be successful. When your exertions have been favourable, and animation is fairly re-established, the most perfect quiet is necessary; a few hours afterwards a laxative enema may be given, and a slight quantity of light nourishing food supplied; and should, as is frequently the case, symptoms of counter-action appear, with slight fever and headache, it will be prudent to withdraw a few ounces of blood by the lancet or cupping, and enforce the antiphlogistic regimen for a short time afterwards. *In asphyxy from suspension*, the immediate cause is also suffocation from obstruction to the respiratory apparatus; the face is gorged with blood, the eyes protruded, and the nostrils swollen and spread; this is especially the case when the cord has been fixed in such a manner as not completely to close the larynx, by which the agony of the sufferer is increased, symptoms of apoplexy taking the place of those of asphyxia; in those instances where death has been instantaneous, from obstruction to respiration solely, the appearances are not so strongly marked, and the vessels of the brain, instead of being as in the former instance overloaded, are proportionately free from sanguineous increase, while those of the lungs are as greatly engorged; when the person of the sufferer corresponds to the first description, it may be proper to abstract a small quantity of blood from the jugular vein or temporal artery, but the greatest judgment is required both in a knowledge of the state demanding its loss, and in the quantity required, which will seldom exceed in the first instance, eight or ten ounces; when it may be presumed that the state of the lungs opposes the chief obstacle to returning animation, the plan directed in asphyxia from submersion may be adopted, and every trial exerted to call respiration into action by the means there recommended.

Asphyxia, from the inhalation of unrespirable gases. The ærial bodies destructive to life, chiefly exist under the names of I. Carbonic Acid

Gas, generated in close rooms, where charcoal has been burnt, at the bottom of vats, wells, caverns, and coal pits, (known by the miners as choke-damp.) II. Sulphureted Hydrogen Gas, produced largely from the decomposition of animal and vegetable matter, in privies, and depositories of filth. III. Carbureted Hydrogen, or more properly the bi-hydroguret of Carbon, called by miners the fire-damp, generally met with in coal mines, and more dangerous from its explosive qualities, which take place by a mixture of from 6 to 12 parts of atmospheric air with one proportion of this gas, a quantity not sufficient to interfere with respiration.

In a case of asphyxia from the effects of any of these gases, the immediate attack is made upon the sensibility of the nervous system, the circulatory and respiratory powers being secondarily influenced; a degree of pallidness is generally observed in the countenance of a sufferer, unless in an instance where the respiratory functions have only been partially arrested, when the effects upon the circulation are immediately visible in a tendency to apoplexy, and the usual tokens of that affection manifested. The patient should be exposed to a free current of air, and cold water repeatedly dashed over the spinal and lumbar regions; strong vinegar applied to his nostrils, grateful acids introduced into his stomach, stimulating enemata administered, and the whole plan of artificial respiration be brought into play. Electricity is here of abundant service, a shock of moderate force being transmitted from the side of the neck in the situation of the phrenic nerve, to the seat of the diaphragm, and repeated at short intervals: unless the signs of apoplexy are unequivocal, bleeding is hardly advisable.

Asphyxia from cold, is occasioned by torpor, and an exhaustion of the physical power, by the sudden abstraction of heat; the countenance is pale and contracted, the limbs rigid and unyielding, the patient insensible, and apparently under the influence of deep sleep. In the employment of remedies, great care is necessary; where partial asphyxia has taken place, and the extremities are the chief sufferers, as in the common instance of frost-bitten limbs, the body should be plunged into cold water, (sea-water is perhaps preferable if it can be procured,) or rubbed with snow and then well dried and gentle friction gradually increased, exercised upon its surface, at the same time introducing small quantities of warm wine into the stomach, and stimulating the rectum by an enema; the same plan may be pursued in more severe cases, where the effects of cold have not been confined to the extremities, carefully avoiding any sudden measures, by which warmth would be too quickly restored; too much care indeed cannot be exercised in this particular; the injudicious kindness of friends has too frequently led to a fatal error, and gangrene and loss of life succeeded to their well meant but ill-employed exertions.

Electrical Asphyxia, is produced by an instantaneous shock to the ner-

vous system, sufficiently strong to overcome its energy ; the countenance is pale, the limbs flexible, and if life be extinct, the muscles will be found flabby and of a bloodless hue, and the blood uncoagulated ; the appearance of the passage of the lightning is sometimes visible, in the form of dark blotches or streaks, or presenting an appearance somewhat similar to the marks occasioned by a charge of small shot.* Stimulants of an active nature must at once be resorted to, where any appearance of life remains, in the form of cordials, camphor, ammonia, &c. to the stomach, and spirits of turpentine as an enema. Upon the continent, a dose of two or three grains of Phosphorus has been strongly recommended, and if that substance may ever be administered, this probably is the case for its exhibition. It is necessary to notice the strange opinion, that electricity is an agent of wonderful power, in this variety of asphyxia, as a counter-irritant, passing the shocks in the same manner as directed in asphyxia from unrespirable gases : if this opinion be correct, it affords a singular instance of the destructive and saving ability of this mighty power.

Asphyxia in new-born infants, may arise from three causes ; 1st. Weakness of the vital functions, when it will be improper to cut the cord immediately ; the nostrils should be stimulated with volatiles, the lungs inflated, friction employed, and the child immersed in a warm bath. 2d. From the mouth and throat being filled with the liquor amnii, or a glairy fluid, which must directly be washed out, and the above means resorted to, if necessary. 3d. From congestion of blood in the brain, by the cord being compressed as in breech and feet presentations, where it is entangled round the child's neck, or from compression of the head by the use of instruments, or pressure of the pelvis, in labour. In this case it will be proper to allow a small quantity of blood to escape from the cord before it is tied, and then to proceed as in the former instances.

When asphyxia and death so frequently occur in new-born children, the necessity of caution in giving an opinion in a case where a parent is suspected of the murder of her offspring, cannot too strongly be inculcated.

ASSAFŒTIDA. *Assafœtidæ Gummi Resina.* A gum-resin procured by exudation from the *Ferula Assafœtida* ; a plant, the growth of Persia and India ; of the class Pentandria, and order Digynia.

Stimulant, antispasmodic, expectorant and anthelmintic in doses of from grs. v. to ℥ j. in cases of hysteria, asthma, dyspnœa, pertussis, and worms.

Official preparations. Assafœtida mixture (*mistura assafœtidæ*) ℥ ss.

* In a case of a boy struck by lightning in England, some years ago, I particularly remarked this appearance.—Editor.

to $\overline{3}$ iss. frequently repeated during hysteria or an attack of spasm. Tincture of assafœtida (tinctura assafœtidæ) ℞. x. to $\overline{5}$ j. the same operation as the gum.

Fœtid Spirit of Ammonia. See *Ammonia*.

Compound Assafœtida Pills. (Pilulæ assafœtidæ comp.) grs. x. to $\overline{5}$ j. in chlorosis, hysteria and hypochondriasis. Pills of aloes and assafœtida (Pilulæ aloes et assafœtidæ) grs. x. twice a day, in dyspepsia, hysteria amenorrhœa.

ASTHMA, (from ἀσθμαζω, to breathe with difficulty. See *Diseases of the Lungs—Emphysema*.)

ASTRINGENTS, (from astringo, to constringe.) That class of medicines, possessing the power of contracting muscular fibres, and at the same time exerting a tonic influence through the medium of the living principle; the principal astringents employed in medicine, are lead, copper, iron, zinc, opium, logwood, oak galls, Peruvian, Augustura, and oak barks, cinnamon, catechu, kino, lime, &c.; externally the same substances, and also, vinegar, cold water, muriate of ammonia, &c.

ATROPHY. (Atrophia, α, from α, without, and τροφω, to nourish.) See *Marasmus*.

AURANTH CORTEX. *Bitter, or Seville orange peel*: the rind of the Citr. Aurantium. Carminative and Stomachic. See *Citrus*.

AUSCULTATION, (Auscultatio, hearing,) is a process, employed in medical examination of the different sounds, which the circulation of the air, the reverberation of the voice, or the beatings of the heart, produce in the cavity of the chest. Auscultation may be mediate or immediate, the latter when the naked ear is placed upon the thorax, the former when the stethoscope is employed; it may be asked, what advantage has the instrument over the natural organ of hearing, that it should be used in preference; to which it may be replied, that in addition to the unpleasantness of the task in approaching so near to some patients, and the indecency of this mode of procedure when applied to females, we do not gain by immediate auscultation that correct knowledge afforded by the stethoscope; the sounds transmitted from the whole surface of the head, applied to the chest, appear to possess so much intensity, that we cannot appreciate their shades of difference, and are so confounded with one another, as to render it impossible to distinguish exactly the place where each is produced; and the rubbing of the head during the elevation and depression of the chest, also adds to the confusion.

Mediate auscultation, as far as the lungs are concerned, makes us acquainted with the natural and pathological phenomena of respiration; the natural phenomena consist in the motions of the thorax, and the peculiar sound of the respiratory murmur. In health, there are about twenty complete respirations in the minute, performed slowly and regu-

larly, with a constant and uniform rhythm, the dilatation and contraction of the ribs being equally marked on both sides; upon the application of the stethoscope, we hear a slight, but distinct murmur, caused by the penetration of the air into, and its expulsion from the cells of the lungs; this murmur is more distinctly heard in the superior lateral, and the postero-inferior parts, where the lungs are nearest to the surface, that is, in the axilla, and in the space comprised between the clavicle, and the edge of the trapezius muscle; over the larynx, the trachea, and the roots of the lungs, the murmur assumes a particular character, indicating that the air is passing through a canal of considerable diameter, and the sound which is termed tracheal, may be compared to that produced by a pair of bellows.

The distinctness of the respiratory murmur, corresponds to its frequency, and hence it is necessary to desire the patient to breathe quickly when under examination; it is more apparent in children, women, and men of an irritable habit, and is generally stronger during inspiration.

The pathological phenomena may also be divided into those relating to the motions of the thorax, and those derived from the character of the respiratory murmur. The motions of the thorax, under disease, may be frequent or unfrequent, quick or slow, irregular, intermittent, or interrupted, great, small, or unequal, difficult in various degrees, incomplete, solely abdominal, or completely thoracic.

Respiration is frequent when more than twenty inspirations are made in a minute, and is natural to infants or persons of a nervous temperament; it occurs after exercise, or strong mental emotions, in hot climates, and generally speaking in the whole class of the pyrexie; respiration is unfrequent when the inspiratory motions are less than eighteen in the minute, and generally accompanies comatose and hysteric affections.

Respiration is quick, when the inspirations are short, rapid, and sudden, and may be allied to frequency, when it is termed accelerated or even panting respiration, according to its degree; it is met with in most acute diseases, and in the last moments of existence; the slowness of respiration may be remarked when the inspirations are long and gradual, and appears under the same circumstances as unfrequency, which it often accompanies.

Respiration is irregular, when the inspirations and expirations succeed each other at unequal intervals; intermittent, when one or more inspirations take place later, or fail altogether; and interrupted, when the expiration takes place before the inspiration is finished: these varieties occurring in inflammations of the chest and abdomen, and also in nervous affections.

Respiration is termed great, when a perfect expiration is succeeded by

a slow or quick inspiration, accompanied by a considerable enlargement of the chest; great and unfrequent respiration is observed in cerebral fevers, at the approach of phrenitic delirium; small, when the dilatation is hardly perceptible; high, when the chest remains elevated, the inspiration not having been preceded by a complete expiration, as occurs in pneumonia, in addition to a frequency, smallness, and quickness of respiration.

Respiration is unequal, when either an inspiratory or expiratory motion is stronger or more prolonged than the other, as frequently observed in typhoid and spasmodic affections, and always in acute attacks of pleurisy and pneumonia.

Respiration is difficult, when the great accessory muscles are called into action, or when the proper respiratory muscles contract forcibly; of this state there are different degrees, from oppressive to suffocating, the latter termed orthopnœa, and attendant upon asthma, diseases of the heart, and most of the affections of the lungs, or indeed upon any condition, in which an obstacle to the entrance of air into the lungs, or to the dilatation of the thorax, is created.

Incomplete respiration occurs, where one lung remains partially or wholly inactive during the respiratory motion of the other, and is one of the most constant symptoms of pleurisy and pneumonia; when occasionally met with in a state of health, it can only be regarded as the result of a former disease, which has caused adhesions between the two pleuræ.

Abdominal respiration (when existing alone, during which the ribs perform no motion) is observed, when the lungs have, from disease, become incapable of performing their functions, and is generally a fatal symptom; in old age, however, it occurs solely from the ossification of the costal cartilages, the elevation and depression of the ribs being thereby prevented.

Thoracic respiration, or that where the diaphragm lends no concurrence, is recognised in all cases of intense abdominal inflammation, occasionally in pregnancy, or ascites.

Such are the changes produced in the motions of the thorax; we have now to consider the pathological phenomena, observed in examining the respiratory murmur.

The sound or murmur of respiration may be stronger or weaker than natural, altogether inaudible, or similar to that produced by the passage of air through the trachea; it may also be cavernous, as when the air passes into an excavation of the lung, and lastly, it is heard in combination with the different *rales*.*

* *Rale*.—There is no English expression which can give a *definite* idea of the meaning of this word.

The murmur of respiration, when stronger than natural, has a similarity to that of children, and has on that account been denominated, by M. Laennec, puerile respiration; it does not indicate any inorbid alteration of the lung at the spot where it is detected, but simply an augmentation of power at one particular part, to atone for the want of action, in another and a diseased portion; it is frequently met with in one lung when the corresponding viscus has lost its permeability, from inflammation, tubercular development, &c.; in pulmonary catarrh, after the reappearance of the respiratory murmur, and in some cases of asthma and hysteria, being then accompanied with distressing dyspnoea.

The weakening or diminution of the respiratory murmur can only be discovered by examinations of different parts of the chest, as it seldom occurs that respiration is thus affected in both lungs at the same time, or even that it is weakened in the entire of one; it varies from the smallest diminution to a complete nullity, and is produced by a partial obstruction of the minute bronchial ramifications, from thickening of their membranes, or the pressure of mucus; also from the existence of numerous tubercles in the pulmonary tissue, and from the commencement of the organization of the false membranes in pleurisy.

The respiratory murmur is absent, in pleurisy accompanied by effusion, in pneumonia in an advanced stage, in emphysema, in pneumothorax, and in pulmonary catarrh.

The tracheal, or as it has been termed by M. Andral, the bronchial respiration, is heard in every case when the air cannot penetrate the pulmonary vesicles, as in hepatization of the lung, or its condensation from tubercles, and would appear to arise from the pulmonary tissue, thus becoming a better conductor of sound, and enabling us to hear the respiration, only occurring in the large bronchial tubes.

Cavernous respiration takes place, when a cavity exists in the pulmonary tissue, differing from the tracheal as it conveys the idea of air entering from a number of small apertures, into a large and undefined excavation, and the sound upon inspiration is more distinct than that occurring on expiration.

Whatever may be the intensity of the respiratory murmur, it is either *pure*, indicating that the bronchial tubes are perfectly free, or it is combined with different rales.

By the term *rale*, is understood, any sound produced by the circulation of the air through the bronchial tubes, and pulmonary vesicles, differing from the natural respiratory murmur, indicating the narrowing of the bronchial tubes, the existence of some liquid in them, or in the air-cells of the lung; four species of rale may be enumerated, the crepitating, the mucous, the sonorous, and the hissing rale.

The crepitating rale, consists in a sound which may be compared to

that produced by the burning of salt, or when a piece of dry lung is pressed between the fingers, and is the pathognomonic sign of the first stage of pneumonia; it also occurs in œdema of the lung, and pulmonary apoplexy; at the commencement of inflammation it merely obscures without concealing the respiratory murmur, but as the disease reaches its maximum, it altogether suppresses it, and is thus a sure indication of the progress of the disorder.

The mucous rale is produced by the passage of air through mucus accumulated in the trachea or bronchial tubes, or through softened tuberculous matter in cavities of the lung; it is readily recognised, especially in its highest degree, from its gurgling sound, whence it has been termed by French pathologists "*gargouillement*." It is met with in all diseases of the lung, in which there is an increased secretion from the mucous membrane of the bronchial tubes, and is characteristic of pulmonary catarrh in its advanced stage; it occurs also in pneumonia, in the first stage, where the disease is terminating by resolution; in the second, where there is an accumulation of mucus in the bronchial tubes; and, in the third or suppurative stage, where an abscess is beginning to be formed; and likewise in phthisis, where softening of the tubercles has taken place, and the fluid from a cavity communicates with the bronchiæ; it is in this latter case demonstrative of the existence of an excavation, particularly when very distinct, and confined to one situation. In some instances, this rale resembles the sound of liquid dropping from an inverted bottle, and this variety is accounted for by Laennec, in the supposition, that instead of one, there are several cavities communicating with each other, by canals of some length, but small diameter.

The material difference between the crepitating and mucous rales, consists in the former arising from an increased determination of blood or thin fluid to the air-cells of the lung, and the latter, from the collection of thick mucus in the bronchial tubes, both rales deriving their origin from the mixture of air with liquids of different tenacity.

The sonorous rale consists of a distinct sound resembling the snoring of an individual, or the loud cooing of a dove; it appears to arise from the narrowing of the bronchial tubes, caused by determination of blood to their mucous membrane, or from any other change affecting the form of these canals; in some instances, perhaps, occasioned by the enlargement of the minute projections observed at the divisions of the large bronchial tubes, and invariably from hepatization of the lung, or an inspissation of the mucus in the bronchiæ. It is the pathognomonic sign of acute bronchitis, and when that disease is combined with pneumonia, we discover the crepitating complicated with this rale, in

the same manner that in the dry pulmonary catarrh, the sonorous combines with the rale now remaining to be described.

The hissing rale resembles a prolonged wheezing sound, accompanying either the end or commencement of inspiration or expiration; it may be grave or acute, dull or sonorous. M. Laennec compares the sound to the cry of young birds, or to that proceeding from the action of a small valve. It is owing to the presence of a scanty but viscid mucus, obstructing the small bronchial ramifications, through which the air is obliged to pass before it reaches the vesicles, and when it is heard over a considerable portion of the lung, respiration is very laborious. The principal affections in which this rale is heard, are emphysema of the lungs, and the chronic pituitous catarrh of Laennec, when the sputa may be observed as presenting an arborescent appearance, resembling the form, calibre, and ramifications of the minute bronchial tubes, from which it has been expelled by the efforts of coughing.

In the acute species of catarrh, it occasionally occurs, complicated with the sonorous and mucous rales.

Auscultation is also applied in the examination of the phenomena of voice.

In the natural phenomena, when a healthy man speaks, his voice resounds in the interior of the chest, and produces a vibration readily distinguished; it is heard most distinctly in the axilla, on the back, between the internal border of the scapula and the spinal column, and in the antero-superior part of the chest, towards the angle formed by the union of the sternum and clavicle; in men with deep voices, the resounding is stronger, but dull, confused, and almost of equal intensity in all points; while in women and children it is clear, and very distinct.

The pathological phenomena of the voice are of four descriptions: Bronchophonia, Pectoriloquism, Metallic tinkling, and Egophonia.

The term, Bronchophonia, is given to a vibratory sound of the voice, louder than natural, or occurring in a part, where it is not heard in a state of health; there is nothing articulate in the sound, but merely a confused noise, seeming to enter the bottom of the stethoscope, without traversing the tube to arrive at the ear. Induration of the pulmonary tissue, produced either by an inflammatory affection, or a mass of crude tubercles, appears to be the cause of this phenomenon, by rendering the lung more fit for transmitting the murmur of the voice; bronchophonia, is generally distinguished more accurately on the point of the chest, corresponding to the root of the lung, and, of course, when the individual is speaking; when it occurs in the case of extensive hepatization of the lung, it is always accompanied by the bronchial or tracheal respiration.

Pectoriloquism occurs, when the voice, distinctly articulate, seems to issue directly from the place where the stethoscope is applied, and to

traverse its tube. It is either perfect, imperfect, or doubtful; perfect, when the voice traverses the cylinder, and arrives at the ear with its natural or an increased intensity of sound; imperfect, when the voice reverberates strongly under the stethoscope, appearing to approach the ear, without, however, traversing the entire tube; and doubtful, when the voice appears sharp and restrained, and more approaching to bronchophonia. The phenomenon of pectoriloquism is owing to the presence of excavations in the lung, communicating with the bronchial tubes, and either in part, or completely empty; it is most frequently observed in the axilla, in the space between the clavicle, and the trapezius muscle, immediately under the clavicle, and in the infra and supra spinous fossæ, all these situations corresponding to the superior parts of the lung; it varies with the sound of the voice, the size of the excavations, and the thickness of their parietes, the adhesion of the two pleuræ over these cavities, and the facility with which the air enters them. In order that pectoriloquism should be perfect, it is necessary that the cavities should be of a moderate size, as in very large excavations, it is changed into a deep sound, as if the voice were transmitted through a cone of paper, and on the contrary, where the cavities are small, the phenomenon appears doubtful and indistinct, particularly if situated in the centre of the lung; it is more evident, in proportion as the cavity contains less fluid, because the bronchial communication is then generally free, permitting an easy access to the air; this communication may, however, be partially or wholly destroyed by the accumulation of sputa in the bronchial tubes, rendering perfect pectoriloquism doubtful, and giving it that intermittent form it frequently assumes; and it may be often remarked, that when pectoriloquism is absent in a patient in whom we have observed it but the evening before, that the expectoration has been scanty, or wanting altogether. Laennec has particularly remarked that this phenomenon exists in the greatest perfection in a disease denominated by him, "Dilatation of the Bronchial Tubes."

The Metallic sound, or tinckling, is heard upon raising the patient, or desiring him to cough, and is analagous to the sound produced by a drop of water falling into a deep vessel, or to that occasioned by striking a metallic or porcelain basin with a pin; it appears as if a drop of fluid detached itself from the superior part of a cavity, and by falling into a mass of liquid at the bottom of the excavation, caused, by its shock, this peculiar sound; it is heard when the patient breathes, speaks, or coughs; more distinctly in the two last efforts.

The metallic sound, when co-existent with pectoriloquism, is heard traversing the tube of the stethoscope, with the voice; when distinct from it, and produced by means of the voice, a slightly acute sound is heard, vibrating in the interior of the chest, resembling that occasioned

by striking a metallic chord with the end of the finger. As this phenomenon depends on the vibration of the air, caused by respiration, the voice, or coughing, on the surface of a liquid, partly filling an unnatural cavity in the chest, it can only exist in two cases;—first, when a serous or purulent effusion co-exists with pneumo-thorax, arising from a fistulous opening into the cavity of the pleura; and secondly, where a large excavation, half filled with fluid pus, occurs in the substance of the lung.

In the first case, a fistulous opening must exist between the cavity of the pleura, and some of the bronchial tubes, the distinctness of the sound being in proportion to the diameter of the opening, while the extent of the vibrations teaches us how large a space is occupied by air, and it is in general stronger, as the quantity of air existing in the chest is greater, hence, enabling us to conclude, that when it is indistinct, the liquid effusion is considerable, and *vice versa*. When the sound arises from the vibrations of the voice, or from coughing, acting on the surface of puriform matter in a large excavation of the lung, it presents some important differences; its indistinctness, and the small extent of its vibrations, prove, that it occurs in a very circumscribed space; it appears to enter the cylinder, and is combined with pectoriloquism, which allows us to distinguish this from the former case.

Egophonia is a strong reverberation of the voice, more acute than natural, shrill, interrupted, and quivering, like the bleating of a goat, which sound it much resembles; it may be detected over the whole extent of the chest, or on one side only, but is generally confined to a space, the limits of which are formed by the vertebral column, and the internal edge of the scapula; it also occurs at the inferior angle of this bone, and in a space three fingers in width, which, following the direction of the ribs, passes from the middle of the scapula to the sternum. Egophonia is heard over a much more extensive surface than pectoriloquism, and always appears to indicate the existence of a *small* quantity of liquid in the cavity of the pleura, or the occurrence of thick pseudo-membranes, yet in a soft state. Laennec conceives that it arises from the flattening of the bronchial ramifications, caused by the pressure of the effused fluid; it will not take place when the effusion is rapid, or very abundant, owing to the bronchial tubes themselves in such cases becoming compressed like the pulmonary tissue, and finally, it may occur in more places than one, when several circumscribed pleurisies exist, the stethoscope thus pointing out those situations where topical remedies may be applied with advantage.

The application of auscultation to diseases of the heart, will be treated of under the head of Heart.—See “*L'Auscultation Mediate, ou, Traité du Diagnostic des maladies des Poumons et du Cœur*,” par M. Laennec, (translated by Dr. Forbes)—“*Clinique Medicale de M. Andral*,”

(recently translated in Eng^dand)—Ryland's "Manuel of the Stethoscope" &c.

BARBERY BERRIES. *Berberis Baccæ*. The berries of the *Berberis canadensis*, vel *vulgaris*. Class, Hexandria; order, Monogynia. Refrigerant and antiseptic.

BARBIERS. *Beribery*. A disease common to the East Indies, more particularly on the Malabar coast, and in Ceylon, produced by sudden atmospherical changes, from dry to damp, or other transitions; it attacks both natives and foreigners, particularly the latter, during the rainy season: it commences with a general lassitude and painful numbness of the whole body; the legs and thighs become stiff, the knees spasmodically retracted, and in some instances general paralysis succeeds, extending even to the chest and larynx, so as to impede both speaking and respiration; the absorbent system equally suffers, and the body becomes bloated and œdematous, when great restlessness and anxiety, convulsions, vomiting, lividity of the countenance, and sinking of the pulse, are the precursors to dissolution. It would appear that this is a disease of exhaustion and debility, from the effects of climate, the dropsical symptoms occurring secondarily, and as a result of the general weakness.

The treatment consists in re-exciting the absorbent system, by a liberal use of diaphoretics and stimulants; when apoplectic symptoms set in, which is sometimes the case, the lancet should be employed, and purges of calomel and jalap administered; the free use of the former medicine even to salivation has also been attended with good effects.

See Edinburgh Medical and Chirurgical Transactions—Dr. Mason Good's Works—Lord Valentia's Works, &c.

BARK PERUVIAN. See *Cinchona*.

BARLEY. *Hordeum*. A genus of plants. Class, Triandria; order, Digynia. Common Barley, (*Hordeum Vulgare*), is employed medicinally in the form of decoction, for agreeable and diluent drinks in fevers, and inflammatory cases of disease. Decoctum Hordei, and Decoct. Hordei Compositum, ad libitum.

BARYTES, (from βαρυς, heavy, on account of its weight,) an alkaline metal, not employed in medicine; it yields, however, in combination with muriatic acid, a salt which is a powerful remedy in scrofulous and cutaneous affections. See *Muriate of Barytes* and *Metals*.

BATH. (*Balneum*.) A powerful auxiliary to medical treatment in a variety of cases, and used at various degrees of temperature. I. *Balneum Frigidum*, or the *Cold Bath*, acts as a general tonic. II. *Balneum Tepidum*, or the *Tepid Bath*, more suitable to individuals with infirm constitutions, and of essential service in many febrile attacks; the usual temperature ranges from 70 to 90° Fah. III. *Balneum Calidum*, or the *Hot Bath*, of signal benefit when it is necessary to sooth the system into

repose, or to overcome strong muscular action, as in cases of dislocation, hernia, &c.; the temperature is from 90 to 108°. IV. *Balneum Laconicum*, or *Vapour Bath*, highly recommended in cutaneous affections, in the paroxysms of gout and rheumatism, and other diseases. In addition to this description of Baths, some practitioners have made use of others, into which mineral or vegetable substances have been introduced; the sulphate of iron, alum, quick-lime, sal-ammoniac, herbs, &c. are the chief substances employed. Mr. Scott, of Bromley, near London, recommended a few years ago a bath acidulated with the nitric and muriatic acids, for hepatic diseases, and as a substitute for mercury, but the plan was not very successful in his own practice, nor approved of by others.

BEARING DOWN. See *Anus*, *Vagina*, and *Uterus*.

BEAR'S FOOT. See *Hellebore*.

BENZOIN. *Benzoinum*. A gum obtained from the *Styrax Benzoïn*, a tree of the class Decandria, and order Monogynia. Stimulant and expectorant, rarely used; employed principally in the preparation of the Benzoic acid, which see.

BELLADONNA LEAVES. *Belladonæ Folia*. Leaves of deadly nightshade; from the *Atropa Belladonna*. Class, Pentandria; order, Monogynia. Powerfully sedative and narcotic; dose gr. i. cautiously increased, to grs. v. Of the extract, (*Extractum Belladonnæ*,) gr. $\frac{1}{2}$ to grs. v. gradually increased.

BILIARY CALCULI. See *Calculus*.

BILIOUS, (from *Bilis*, bile,) a term generally employed in medicine, to denote the existence of diseases arising from too abundant a secretion of bile, such as the bilious cholera, bilious diarrhœa, bilious fever, &c.

BISMUTH, (*Bismuthum*, from *Bismut*, German,) one of the common metals. Its oxide has been occasionally administered in spasmodic affections of the stomach, as a sedative and antispasmodic, in doses of four grains, three or four times a day. See *Sub-nitrate of Bismuth* and *Metals*.

BLADDER. See *Urinary passages*, diseases of.

BLEEDING. See *Wounds*—also *Hæmorrhage*.

BLEPHAROPHTHALMIA, (from *βλέφαρον*, the eyelid, and *οφθαλμία*, a disease of the eye.) An inflammation of the eye. See *Eye*.

BLISTER. A topical application of great value in many diseases, producing a serous discharge, by previously exciting a high degree of inflammation; various substances have been used for this purpose, such as the strong acids, boiling water, &c.; but these have all been discontinued in favour of the *Cantharis Vesicatoria*, or the Spanish or blistering fly. Blisters may act, says Dr. Paris, 1. As *Derivatives*, that is, by

producing a derivation of the circulation from the inflamed and engorged vessels of the neighbouring organs, to the blistered surface. 2. As *Evacuants*, by occasioning an effusion of fluids. 3. As *General Stimulants*, by raising the vigour of the circulation. And 4. As *Antispasmodics*, relieving pain, through the medium of contiguous sympathy.

One caution is necessary in the employment of blisters, to the tender skin of infants; never to allow them to remain on more than four hours; the most lamentable consequences have followed their application, when no more caution has been exercised, than in the case of an adult, in the forms of gangrene and death.

Officinal preparation. Of yellow wax, pine resin, and olive oil, of each two ounces—cantharides in powder, three ounces, adding the last to the three first, when melted together, and stirring the whole, until cool.

BLOOD ROOT. *Sanguinaria Radix.* In small doses tonic, stimulant, expectorant, alterative; in larger, narcotic, sedative, emetic—grs. ij. to grs. x. in powder.

BOIL. *Furunculus*, (from furo, to rage, on account of the attendant inflammation.) A circumscribed and prominent swelling, occurring in the cellular membrane, of a deep red colour, hard, exceedingly tender and painful, commonly terminating in a slow and imperfect suppuration. When the tumour does not occur in a very sensible part, is not very large, and is single, but little constitutional disturbance ensues; but when in an enfeebled habit, when several parts of the body are similarly affected, and the boils are of considerable size, great restlessness and fever is produced; they commonly arise from a deranged state of the chylipoetic viscera, which must be remedied ere a cure can be accomplished, and a recurrence of the affection prevented.

Treatment. As the suppuration is slow and imperfect, it is generally necessary to hasten the one by the application of an emollient poultice, and to assist the other by the lancet, for the more ready evacuation of the matter, and this with a little aperient medicine, will in most instances answer every purpose required.

BONES, *diseases of.* The osseous system of the frame, when in a state of health, partakes only in a small degree of the general action of the system. Bone possesses neither sensibility or contractibility, but few blood vessels, and requires in most cases, a considerable time in effecting any important changes; no sooner, however, does disease attack this system, than even in its incipient stage, the most evident signs of vitality appear; the usual progress of inflammation is as well marked, as in the soft parts, in proportion to the difference of structure, and that of which we have been unconscious when in a healthy state, now becomes exquisitely painful.

The following are the principal diseases to which this system is subject, and which will be treated of in the order they are named.

Affections of the Antrum, Caries, Necrosis, Exfoliation, Exostosis, Spina Ventosa, Mollities Ossium, Fragilitas Ossium, Osteosarcoma, and Rickets.

Affections of the Antrum. The diseases to which this cavity is liable, are various; in inflammation of its membranous lining, a large quantity of mucus or pus is secreted, giving rise to symptoms somewhat ambiguous in their commencement, and frequently confounded with tooth-ache, or rheumatic pains; as the disease advances, its real nature becomes more apparent, from the expansion of the cavity, elevating the floor of the orbit, so as to press the eye from its situation, and close the passage of the nostril, at the same time appearing visible on the cheek; and the parietes of the antrum at length becoming thin by absorption, discharge the accumulated matter through ulcerated openings. The cause of this affection may arise from a carious state of the molar teeth, communicating by their fangs with the antrum, from an obstruction of the duct leading from thence to the nose, by which the secretions are retained, or from exposure to cold and damp.

When it is ascertained that matter is confined in the antrum, the first step must be to promote its free exit, and in most cases, this is easily done, by extracting the third or fourth molar tooth, and perforating the antrum through its socket; a poultice should be then applied to the cheek, and astringent lotions daily injected into the cavity.

When, however, an extensive caries exists, and there are loose portions of dead bone keeping up irritation, it becomes necessary to make a larger opening than can be effected through the alveoli; for this purpose a transverse incision below the malar process, and above the root of the third molar tooth, should divide the gum and periosteum, and expose the bone; the crown of a small trephine may be then applied, and as large an opening made as possible: after the extraction of the portions of dead bone, little remains to be done, but in preventing the further accumulation of matter by astringent lotions, and keeping the parts perfectly clean.

A more formidable disease attacks the antrum in the growth of polypi and tumours, (either of a fleshy or fungous character,) within its cavity. The symptoms produced, are nearly the same as those already detailed, of course dependent upon the nature of the tumour for severity of suffering and quickness of development; a polypus, or fungous mass will increase much sooner to a frightful extent, distorting the features, loosening the teeth, and occasioning extreme pain, than a tumour of a fleshy nature; but the same treatment is available in all these cases, and consists in opening the front part of the antrum, in the manner already directed, and thus extirpating the disease.

Exostosis is the remaining affection to which the antrum is liable, when instead of its parietes being softened by absorption, they become thickened as well as enlarged: a venereal exostosis of the antrum is occasionally met with, and must, of course, be treated accordingly, but when it depends upon a constitutional cause, or even in the former instance, when it will not yield to internal remedies, the knife and trephine must be resorted to.

Desault, the celebrated French Surgeon, removed an exostosis with the mallet and gouge, when the resistance was too great for weaker instruments, and applied the actual cautery to restrain the hæmorrhage and prevent reproduction; these, however, are violent, and most objectionable measures, except in the hands of a Surgeon like Desault; the trephine will be generally found sufficient, although some cases may occur justifying the use of the cautery, cautiously applied. Several cases are recorded, where insects have been removed from the cavity of the antrum, some of rather a marvellous nature; gun-shot, and other wounds may also injure it, when the necessary treatment must be upon the general principles that dictate the practice already described.

Caries, (from *κείρω*, to abrade,) may be compared to ulceration of the soft parts, where a solution of continuity is produced by the action of the absorbents. A bone suffering from caries, may be considered as falling a prey to a morbid action, going on in its own substance, and which, if not timely arrested, will accomplish its utter destruction. Bones of a spongy texture are more liable to be attacked by caries, than such as are compact, and hence, the vertebræ, astragalus, the other bones of the tarsus, those of the carpus, the sternum, the bones of the pelvis, and the heads of the long bones are the principal sufferers, while the disease is more frequent in children and young persons, than in old age. Caries may be divided into three kinds. 1st. Where it arises from external causes. 2d. When it proceeds from an internal local cause, where no external injury or constitutional affection has occurred, and where local means can remove it. 3d. When it is produced from a general internal cause or constitutional disease, which variety will require such a treatment of the system as will overcome this particular tendency.

Symptoms.—When caries arises from an external injury, a loose fungous flesh forms on the surface of the diseased bone, bleeding from the slightest causes; in the soft parts a sinus leads down to the caries, and emits a very fetid dark coloured sanies; the nature of the injury, a dull and deep seated pain in its situation, together with a swelling of the surrounding parts, will indicate the existence of caries even when the surface has not been wounded; the disease is occasioned by a violent blow or contusion; when the sinus is apparent, a probe will readily pass down to the bone, which will be found perforated, as it were, by numerous small

openings. When caries arises from an internal local cause, when we cannot attribute it either to constitutional derangement or external injury, the detection is more difficult; the deep seated pain, the gradual swelling, and a constraint in the motions of the part, may lead us to imagine that caries exists in its first stage; but if its progress be unchecked, our doubts are soon relieved by the appearance of a sore and a sinus leading to the bone, bearing the distinctive characters before mentioned. When proceeding from constitutional causes, such as scrofula, scurvy, or the venereal disease, the symptoms are nearly of the same character, but the disease is much more rapid in its progress, frequently giving rise to paralysis of the lower extremities, and lumbar abscess; in scrofulous caries, the bones of the vertebræ, those of the tarsus and carpus; and the heads of the long bones are usually affected, whilst venereal caries generally attacks the bones of the cranium, nose, palate, and the sternum. In cases of cancer of the breast, the sternum and ribs are occasionally found carious; whether this is occasioned by the same causes that produce a cancerous ulceration of the soft parts, or is produced merely by an extension of the disease to the bone, is not agreed upon. The ancient notion, that abscesses in the vicinity of bones, would induce caries, is now deservedly exploded; there is nothing erosive in the nature of pus, and if an opportunity be afforded of tracing the caries and the abscess from their commencement, we shall generally find that the former is the cause, and not the effect of the suppuration of the latter.

Treatment.—Wherever scrofula, or the venereal disease exists, and caries arises in consequence, the primary attention must be paid to their abatement or removal; when the system is placed in such a condition as to permit the employment of local remedies, with a rational hope of success, the treatment of the part affected will depend upon the same principles, from whatever cause the caries has originated, if the disease does not yield to the general means that have been employed. To fulfil the first intention, if the disease be of a scrofulous or scorbutic character, the diet must be strictly regulated, and limited to a very small allowance of animal food, with an abundant supply of fruits and vegetables; the vegetable acids, a change of air, moderate exercise, will also prove of material assistance; in fact, the same rules must be enforced, as would be laid down for the government of a scrofulous patient, and which are minutely detailed under the proper head, in this work; when caries is the product of the venereal disease, the remedies of course are different; it may be a point of serious consideration, notwithstanding the prejudice, in the present day, against the use of mercury in venereal affections, whether its employment be not necessary in checking a dis-

case so severe in its action, but this subject also, will be treated of with more propriety in another place.

The local means are various, and must be adapted to the state of the parts; a separation of the diseased portions of bone, may be frequently accomplished by stimulating applications, after the employment of an emollient poultice, to hasten the suppurative process, by which a detachment of the unsound from the sound parts will be accelerated. Lint moistened with a solution of aloes or myrrh, a solution of nitrate of silver, or nitric acid diluted in the proportion of ʒj. to ʒ xvj. , may be applied, and occasionally with advantage; in France, the potential and even the actual cauterly is employed, after an exposure of the bone with the knife, in the idea, that their destructive power changes the caries into a necrosis, which is more readily thrown out, especially after the irritation, to which the soft parts have been subjected.

When such inflammation prevails, it will be necessary to practice topical bleeding, or to apply blisters, an issue, or the antimonial ointment, all of which have their advocates; the moxa has also been much recommended as a counter-irritant, and in many cases has afforded singular relief. These measures may perhaps subdue caries, either in its early stage, or when it is not very extensive, but when as in some cases, we witness its ravages without being able to restrain them by such means, and when the constitution sympathizes from the irritation produced, and the discharge occasioned, a different practice must be resorted to. The late Mr. Hey, of Leeds, in England, was sufficiently fortunate in the extirpation of the carious parts of a bone, to render his example worthy of imitation; after cutting down to the bone, and removing every portion of granulated flesh attached to it, he, with a circular headed saw (well known as Hey's saw) sawed out a piece of bone, in order to bring into view the condition of the cancelli beneath it, and all the disease he could trace therein, was carefully detached by small trephines, or a gouge; it is sufficient to remark without following the steps of his operations, that in the first instance, so large a quantity of bone must be removed, as to afford convenience in taking away the diseased cancelli, which may be pursued with a strong and sharp pointed knife, or where that will not answer, by any other instrument, as a chisel, gouge, or trephine; that the integuments must be wounded as little as possible, in order to give a fair chance of a ready union over the bone, and that the parts must be dressed with dry lint afterwards, avoiding the use of any ointment, which will only interfere with the office of nature. Mr. Liston, of Edinburgh, varies the plan of Mr. Hey, in preferring the use of the forceps he invented, either for the amputation of the metatarsal or metacarpal bones, or the removal of carious surfaces, to the trephine or gouge; the forceps are so constructed, that their cutting edges are on a

fine with their handles, and possess great power, as well as a facility in use; this Surgeon also considers, in opposition to Mr. Hey, "*that the use of the actual cautery is indispensable, whenever the cancellated texture of a bone is encroached upon*:" be this as it may, the plans of both these operators have been eminently successful, and are entitled to attention; and although it will ever be of paramount importance to the surgeon, to remove every particle of diseased structure, when he undertakes an operation, the application of the cautery should never be made, unless with a thorough conviction that a cure will not be perfect without it. These remarks may conclude with the observation, that however valuable the knife and other instruments may prove in the removal of this disease, they should never be too officiously employed, or until a fair opportunity has been yielded, for the system to throw it off, or overcome its action, and the numerous cases of cure under mild treatment, will justify the caution, of not interfering too soon with the efforts of nature.

Necrosis.—As caries corresponds to ulceration, so does this disease compare with mortification of the soft parts; in fact, the term from *уекрѡу*, to destroy, implies the absolute death of a bone. The femur, tibia, fibula, clavicle, humerus, radius, ulna, and the lower jaw, are the bones usually attacked by this disease; more rarely, the scapula is affected, and with this exception, it is a very uncommon circumstance for any but the cylindrical bones to suffer from necrosis. Unlike caries, it appears at all ages, although the periods of childhood and puberty are most liable to it, when it originates from constitutional causes, chiefly attacking the compact shaft of a bone, rather than the spongy texture, which, endowed with a higher degree of vascularity, is more apt to suppurate, as in caries, than to mortify, as in necrosis.

The disease may be occasioned either by external or internal causes; the first are wounds, contusions, pressure, fractures, extreme degrees of heat and cold, &c., injuring the periosteum, and medullary structure of a bone; when the periosteum inflames and sloughs, the vessels conveying nourishment to the bone, are destroyed, and necrosis inevitable; in some cases, where the injury is not very extensive and the vessels not interfered with, the periosteum will, under careful treatment, gradually recover, under the process of granulation. The internal causes of necrosis, if they may be properly so termed, are rendered apparent, by the disease occurring after so slight an injury, that without a constitutional affection, a death of the bone could not take place; the effects of small-pox, measles, serofula, and the venereal disease, will also determine to the osseous system, producing necrosis.

Symptoms.—The inflammation arising from any of the above causes, may be acute or chronic; chronic, when it passes slowly through its different stages with little suffering, and where it proceeds from sero-

fula, or the venereal disease, or occurs in debilitated constitutions; acute, when it is rapid in its progress, attended with severe pain, fever, restlessness, and delirium. The part is at first affected with swelling, widely diffused, which continues to increase, until the skin gives way, and abscesses appear along the course of the bone; this swelling is frequently combined with œdema of the limb, particularly in the chronic form of the disease, where the system has been affected by continued irritation; the cellular substance at length yields, the abscesses extend, and soon become sinuses, reaching down to the bone; in the acute form of the disease, the pus is of good quality, while in the chronic stage, it is thinner and less healthy; when the discharge has been continued for some time, the sinuses become of a fistulous nature, with callous edges, and throwing out fungous granulations, either of a pale yellowish, or a vivid red colour, not very tender, but bleeding on the slightest touch; upon introducing a probe through the sinus to the bone, or the finger, where the abscesses are large enough to permit its passage, the periosteum will be found detached, and the bone unequal and rough; the dead portion is frequently felt to be loosened, and on the point of separation; this mode of examination may detect whether there be one sequestrum or several, and also the precise situation of the loose portions. Much stress has been laid by some authors, upon the black discharge observed upon the dressings in necrosis; this is, however, nothing more than a consequence of the bone being exposed to the action of the atmospheric air, as those parts of the bone, which are protected from its influence, retain their natural colour, while the denuded portion becomes discoloured. Necrosis is seldom a fatal disease; so much irritation may occasionally be produced, as to cause hectic, and in such cases amputation may be the only mode by which life can be preserved; but in general, the fever will subside under proper treatment.

Treatment.—In the cure of necrosis, nature acts an important part; perhaps in no instance are her powers of reparation so beautifully displayed; her office is to supply the loss of an old, by the production of a new bone, surrounding and incasing the former, which is gradually and totally absorbed, leaving a perfect limb; the deposit of the new matter, and the absorption of the old, would appear to take place simultaneously, for if the former bone were to be removed before the new one had been partially formed, the limb would be completely useless, which is not the fact, even in the most severe cases of the disease; the incipient formation is prior to the total death of the sequestrum, and greatly dependent for the rapidity of its progress, to the time occupied by the absorbents in removal. In many of the cases of necrosis, the aid of the physician is only required to restrain inflammation, and afford such remedies as the system may require, during so severe a trial of the natural powers.—

Bleeding, leeches, cold lotions, a blister, and other antiphlogistic means may be employed, but with judgment, as the patient may need support afterwards, if the suppuration be extensive; when hectic prevails to an alarming extent, and the prognosis is decidedly unfavourable, the preservation of life must be compounded for in the loss of the limb. During the separation of the sequestrum, little should be attempted, unless the constitution be materially disturbed, but when we find that the dead bone causes much irritation, and especially when any part lies detached and superficial, we are then justified in attempting its extraction, and even where it is completely encased, if the patient's safety is compromised by allowing it to remain; this operation is exceedingly simple, and merely consists in dividing the integuments with a scalpel, to a sufficient extent, and then removing with a trephine, Hey's saw, or gouge, so large a portion of the new bone, as will enable us to remove the sequestrum within it. During a suppurative process, the strength of the sufferer must of course be supported, by the administration of wine and tonics.

Exfoliation.—This term implies the casting off a dead portion of bone from the living, and before this can occur, the part must have completely lost its vitality, in consequence of injury either to the bone or the periosteum. Dead bone never rots or decays, but comes away in a sound condition, except being perforated with small holes; the act of exfoliation is occasioned, first, by the portion of dead bone acting like any other foreign body, and irritating the surrounding and living parts, which becoming more vascular in consequence, stimulate the absorbents to a stronger action upon the earthy matter of the living, where it is in contact with the dead portion; the animal matter is next absorbed, and at length the dead bone pushed to the surface, while granulations spring up, to fill up the space before occupied by it. It is by no means inevitable, as formerly supposed, that exfoliation occurs when a bone has been partially denuded of its periosteum; if this latter be quickly replaced, it will frequently adhere to the bone, and sometimes even where it is not restored, granulations will be produced on the surface of the bone, and thus prevent exfoliation.

The old practice of applying stimulants and caustics to a bone under the process of exfoliation, was decidedly bad, and has long yielded to milder treatment; to prevent an exfoliation, after an injury has been sustained, by which the bone is denuded, the soft parts should be immediately and carefully replaced, and this may especially be practised, with the greatest advantage, when the scalp has been torn from the cranium. (See Injuries of the Head.) When the exposed bone cannot be covered, the most simple applications, such as dry lint, or the spermaceti ointment should be used. When the process of exfoliation is tedious, and the dead portions are wedged in the living bone, thus giving

rise to much irritation, they may be properly removed with Hey's saw; a lotion formed by a mixture of nitric acid and water, has been occasionally employed to excite the action of the surrounding absorbents, and hasten the separation of the dead parts.

Exostosis, (from $\epsilon\chi$, out, and $\sigma\sigma\gamma\sigma\sigma\nu$, a bone.)—A bony exerescence, or tumour, growing out of some part of a bone, or according to Boyer, the enlargement of a part, or the whole of a bone. The morbid growth may arise, 1st. from an osseous deposition, seated between the external surface of the bone, and the internal surface of the periosteum, and adherent to both; 2d, from a similar formation originating in the medullary membrane, and cancellated structure of a bone. Sir Astley Cooper, from whom the above divisions are derived, describes also the cartilaginous, and the fungous exostosis; the first, where the enlargement is preceded by the formation of cartilage, which forms the nidus for the ossific deposit; the second, where the tumour is softer than cartilage, yet firmer than fungus in other parts of the body, containing spiculae of bone, being of a malignant nature, and depending upon a peculiar state of the constitution, and action of vessels, somewhat similar to fungous hæmatodes, but modified by the structure of the part in which it originates, (this latter form of disease, will be treated of under the head of *Osteosarcoma*.) The bones principally affected by exostosis are those of the cranium, the lower jaw, sternum, humerus, radius, ulna, bones of the carpus, the femur, and tibia. In size, structure, and consistence, exostoses present great differences; the small enlargements are generally situated in the cancellated structure of the bone, while those tumours of a large description, and occasionally of an enormous size, are more commonly seated between the bone and the periosteum, and hence denominated *false* exostoses, in distinction to the former, which are termed *true*; the structure may be a mass as hard as ivory, it may be of a cellular texture and formed of broad laminæ, intercepting extensive spaces filled with matter, different from the medulla, or it may consist of a sort of hollow sphere, with thick hard walls, and the cavity filled with cartilaginous or fungous substance. An exostosis, when not very large, causes little inconvenience, but when it has extended itself, the surrounding soft parts become affected; the muscles being stretched and emaciated, the cellular substance thickened, and perhaps the functions of the nerves and arteries interrupted; the action of the flexor muscles of the leg may be interfered with, by an exostosis in the vicinity of the knee; the functions of the urethra be disturbed by one near the symphysis pubis; an exostosis in the orbit, may destroy vision, and displace the eye; in short, wherever these enlargements occur in the neighbourhood of important organs, and increase to any size, a loss of power must be experienced in their functions. Venereal exostoses, or

nodes, arise chiefly on compact bones, and such as are superficially covered, such as the bones of the cranium and the anterior surface of the tibia. (See *Venereal Disease*.) What are the positive causes of exostosis is a matter of some uncertainty; we are aware that the venereal taint is one source; the French surgeons in general, impute the disease wholly to internal causes, and imagine that scrofula is frequently the source of its origin: the ease with which it is produced in some habits from slight injuries which occasion no effects in others, renders it probable, that it is mainly dependent on constitutional causes.

Symptoms.—Exostosis may be either chronic or acute, and the symptoms, of course, vary with its nature; in the former kind, which usually accompanies the hardest enlargement of the bone, the tumour is preceded by no pain, increases very slowly, is attended with little sensibility, and only becomes alarming when its size occasions a disturbance of the surrounding parts; in the acute form, and where the cartilaginous precedes the ossific deposit, the enlargement is also gradual for a considerable period, and attended with no great degree of pain; the surface of the tumour, however, at length becoming tuberculated, ulceration ensues, a bloody serum is discharged, a fungous forms, and the usual train of hectic symptoms sets in, by which the patient is destroyed; this latter form of the disease is rare, exostosis being generally characterized by a peculiar indolence of growth, and a want of those symptoms that accompany active inflammation. A hard exostosis, when it has gained a large size, will sometimes terminate in necrosis, from a mortification of the enlarged bone, which separates it from the sound portion; this is a favourable, but unfortunately, a rare termination of the disease.

Treatment.—Whenever an exostosis is not productive of great distress, it is unwise to undertake any operation for their removal; this must be laid down as a positive rule; for as Boyer justly remarks, the local affection is much less to be dreaded in most cases, than the means used for removing it. When any constitutional cause can be traced, the assistance of the physician is of course required in the administration of such remedies as will correct it; and when the disease is attended with much pain, the outward use of opium will frequently afford great relief. Boyer strongly recommends a linseed-meal poultice, made with a decoction of nightshade and henbane, to which laudanum may be added; when the pain is not considerable, the soap and mercurial plasters, volatile liniment, washes of soda or potass, may be applied as resolvents. Sir A. Cooper has given the oxymuriate of mercury in small doses, together with the compound extract of sarsaparilla, and in some cases with considerable benefit. Mr. Samuel Cooper draws the attention of the profession to the propriety of keeping a blister open over an exostosis, in order to

promote its absorption, and leeches may be applied with the same intention. Mr. Abernethy in the treatment of a peculiar case, where a boy was strangely predisposed to this disease, administered the muriatic and acetic acids, in order to dissolve the lime, which he thought too abundant in the system, but as Mr. S. Cooper properly demands, how could it be expected, even admitting the correctness of the theory, and that the acids could, by possibility, after entering the circulation, act upon the tumour, that the redundant depositions of the phosphate of lime should alone be dissolved, and at the same time, the skeleton itself remain undissolved. Caustics and the cautery have been applied to exostosis, but generally with a bad effect. When the system is much affected by exostosis, and the situation of the tumour allows of its safe removal, the operation may be undertaken; but in some cases, the bases of the tumours are so extensive and deep, that amputation may be preferred to their extirpation. When it proposed to remove a tumour of this nature, it must be exposed by the knife as much as possible, and cut away by one of Hey's saws, or what is still better, a saw invented by Mr. Machell, and described in the surgical essays of Sir A. Cooper, as a small, fine, perpendicular, wheel-like saw, turned by a handle; the orbicular saw or Græfe, of Berlin, may also be advantageously employed, and also the rotation saw of Professor Thal, of Copenhagen; a strong pair of bone nippers, or Liston's cutting forceps, will also be found serviceable during the operation.

Spina Ventosa.—(A term first employed by the Arabian writers, Spina signifying a thorn, on account of the prickling sensation experienced, and Ventosa, being added, because upon touching the tumour, it seems to be filled with wind, though this is not the cause of the distention.—Hooper.) A disease in which matter is formed in the interior of a bone, and afterwards makes its way outward beneath the skin; the term spina ventosa has been erroneously employed to signify the affection, termed *white swelling*, which in fact, it in no way resembles, as the accumulated matter passes from the interior of the bone under the integuments, and as it attacks the middle portion of the long bones, as well as the joints, where it is of rarer occurrence. It may be occasioned by a blow or other violence, capable of injuring the bone, or arise as a constitutional affection in weak or debilitated habits, particularly after fever.

Symptoms.—A dull and heavy deep seated pain is complained of in the part, while the external appearance is unaffected; the nature of the disorder may not be suspected for a considerable time, nor until the bone becomes extensively diseased, and the periosteum thickened, when the enlargement will present the appearance of a node; or sometimes a red swelling of the integuments, with a soft, spongy feel; at length matter accumulates under the communicating periosteum, with the

bone by one or more small apertures; the bone then becomes extensively carious, the periosteum gives way, and ulceration extends through the skin, so that a probe can readily be passed into the interior of the bone; excessive pain occurs as the disease advances, and renders either the removal of the cause of irritation or amputation necessary. It most frequently occurs in the carpus, tarsus, and tibia.

Treatment.—The abscess must be laid open, the soft parts dissected off, and, where the aperture in the bone is discovered, a trephine applied, and carried through the lamella; this exposes the diseased cancelli, which must also be removed, either with the knife, gouge, or other instruments; the part should afterwards be dressed with dry lint, when the cavity will gradually be filled with good granulations, and a cure follow, probably without exfoliation; if necessary, the strength of the patient must be supported, by a judicious administration of wine and tonics.

Mr. Hey, of Leeds, in an exostosis of the parietal bone, by which an absorption of both tables was occasioned, and an extravasation of the matter caused under the pericranium and upon the Dura-mater, applied the trephine, and removed the whole of the diseased mass.

Mollities Ossium.—A softening of the Bones. This disease consists in a great softening of the bones, so much so as to admit of their division by a knife, and at the same time occasioning so great a flexibility, that they may readily be bent in any direction; it depends directly upon an inordinate absorption of the phosphate of lime, a due proportion of which is necessary in the economy of every healthy bone, and of so great a weakness of the vital functions, that they are unable to repair the loss thus occasioned; this is fortunately an uncommon disease, and one, of which the remote causes are unknown; in the cases recorded, we are only put in possession of the melancholy fact of its occurrence, without a sufficient reason being advanced for its cause, or a remedy prescribed for its cure. It may affect individuals at any period of life, and is usually accompanied by a soft and flabby condition of the muscles, and sometimes by a partial disorganization of the viscera. The most remarkable case on record is that of Madame Supiot, whose thigh bones were so flexible, that her feet could be laid on each side of her head, her other bones corresponding to this flexibility, and at her death, she was two feet two inches shorter, than when in a state of health. This disease differs materially from Rickets, as we shall show, when treating of that subject.

Fragilitas Ossium, or Brittleness of the Bones. Arises according to the definition of Boyer, from a deficiency of the soft matter naturally entering into the texture of bones; to a certain degree, it necessarily occurs in old age, because the proportion of lime naturally increases,

whole that of the organized part diminishes; hence the bones of old persons break sooner and are longer in re-uniting than those of young subjects. This affection is sometimes occasioned by a cancerous diathesis, where the bones become morbidly brittle, and also by syphilitic disorder; in bad cases of scurvy the same circumstances are remarked, and it is a well recorded fact, that, during Lord Anson's voyages round the world, when the scurvy committed such dreadful ravages among his crew, in those individuals who had previously suffered from fracture, the callus became divided, and defied all efforts at re-union. When *fragilitas ossium* occurs as an effect of old age, all remedial attempts are useless; in other instances, where it arises from constitutional causes, our aim must be to counteract them when in our power to do so, as the only means of obviating the otherwise inevitable consequences of the disease.

Osteosarcoma, or *Osteosarcosis*, (from *οστέον*, a bone, and *σαρξ*, flesh.) This term is employed by Boyer to designate the change of a bone, into a soft substance, resembling a cancerous gland, or a substance of the consistence of flesh; all the bones are liable to this disease, but it is more frequent in those of the face, the lower jaw, the long bones, and, in particular the *ossa innominata*; it appears to possess a strong analogy to cancer of the soft parts, and is characterized by a deep seated pain, which commonly prevails some time before any swelling is manifest; the pain gradually increases and becomes lancinating, when the swelling appears, and quickly occupies the whole of the limb or member affected; it is unequal and tuberculated, not lessened by, or painful upon pressure; the tumour gradually increasing with a correspondent degree of suffering, the soft parts at length inflame, and when, although rarely, they ulcerate, the sore puts on a cancerous appearance, hectic is rapidly induced, and the patient sinks. Boyer, in his admirable description of this disease, observes, that the bony texture frequently disappears, and an homogeneous, grayish, or yellowish, lard-like substance is formed in its room, of the consistence of cheese, seldom becoming so hard as cartilage; the surrounding soft parts share in the disease after it has existed for some time, and become reduced to the same substance. Treatment can do little in osteosarcoma; the cause is decidedly constitutional, and that of so formidable a nature, as to render every remedy inert; even amputation, although removing an affected part, is no certain cure, as the disease is prone to occur in another situation. See *Jaw Amputation*, for successful cases of removal, on account of this disease, by Dr. Mott and others.

Rickets Rachitis, (from *ρaxis*, the spine, because the disease was supposed to depend on a morbid state of the spine, whence the curvature commonly observed.) The proximate cause of this affection is a

deficiency in the formation of bony earth ; the remote or exciting cause may be traced to evils alike existing in the palace or the hovel, want of pure air, proper nourishment, and regular exercise ; it would appear also in many instances, that an hereditary predisposition may prevail, called idiopathically, into action, or as a consequence of serofulous or venereal attacks in the persons of the parents. It seldom appears earlier than the ninth month, and not often later than the second year, and commences by a paleness and swelling of the countenance, flaccidity of the muscles, and great emaciation ; the head grows larger from the opening of the fontanels and sutures ; the process of dentition, if commenced, is slow and imperfect ; the ribs become flattened, and the sternum projecting, giving the appearance vulgarly known by the term chicken-breast ; the joints loose and spongy, the spine incurvated, while the head falls to one side from a want of proper support, the abdomen swells, all the secretions become vitiated, particularly the urine, which is generally loaded with a sediment of lime, until hectic supervenes, and a fatal diarrhœa terminates existence.

Treatment.—By timely assistance many cases of rickets may be arrested, although it may not always be possible to prevent a serious degree of deformity ; many individuals who have laboured in this disease in infancy, have been remarkable in after years for strength and agility ; the deformity of the pelvis is the most serious evil that can remain in the female owing to the difficulty in parturition that is commonly occasioned. A variety of means have been proposed in the treatment of this distressing disease ; the preparations of iron as tonics, at one time were much employed ; also the alkalies and alkalescent earths, on the ground that an excess of acidity prevailed ; but our best course will probably be to endeavour to give that tone to the system that shall enable it to overcome the weakness that exists ; for this purpose, the first indication is the reform of faulty secretion ; the bowels should occasionally be acted upon by rhubarb, or the neutral salts, where the abdomen is tumid, and we suspect an affection of the mesenteric glands ; small doses of mercury may be given, in conjunction with the mild tonics, and in addition, the strictest attention should be paid to the daily habits, and a course of regular exercise persevered in ; a change of air, light nourishing food, cold bathing when the weather will permit it, and all those little auxiliaries that prudence can suggest for the amusement of the patient will complete the treatment, which if duly persevered in will frequently reward our care.

Consult the following works, on diseases of the *Bones*: “Boyer’s Surgery”—“Natural history of the human teeth,” by John Hunter.—J. L. Deschamps “*Traite des Maladies des Fosses Navales et de leur sinus,*” (on the subject of Antrum :)—“Medical Essays of Monro”—

J. Wilson "on the structure and diseases of the bones"—and Liston's "Essay on Caries:)" (on Caries:)—White's "Cases in Surgery,"—"Bromfield's Surgical Observations"—"Desault's Parisian Chir. Jour." vol. 1—Russell's Practical Essay on Necrosis"—Knox's Treatment of the same," (on Necrosis:)" "Bell's works" and "Thomson on inflammation;"—Wilson and Liston's works as above (on Exfoliation:)—Sir A. Cooper's, "Surgical Essays," (on Exostosis:)" most of the above authors on Mollities and Fragilitas ossium—Brodie "on the Surgical Anatomy of the joints," and Boyer (on Osteosarcoma:)" Rircherand's "Nosographie Chirurgicale," R. Hamilton on "Scrofulous affections," &c. &c. (on Rickets.)

BORAX, *the Subborate of Soda*, (Sodæ sub-boras.) Diuretic internally, but seldom administered; externally detergent, mixed with eight or ten parts of honey, for aphthæ of the mouth, or in the form of a lotion, grs. x. to 5 ss. to $\frac{3}{4}$ i. of water.

BRAIN—injuries of. See *Head*.

BREAST, diseases of, I. Mammary or milk abscess, generally occurs within the three first months after parturition, although not uncommon during the whole period of suckling; the usual causes are a repression of the secretion of milk at an early period, mental disturbance or alarm, moving the arms too much, when the breasts are enlarged, and injuries.

Symptoms.—The part enlarges, becomes painful, with an oppressive sense of weight; the integuments assume an uniform or a partial redness, and the flow of milk is generally stopped in those cases where its suppression has not led to the disease; the affection gradually extends to the axilla, and if not resolved in three or four days, usually terminates in suppuration. Upon examination by the hand, the enlargement will appear to consist of several tumours, if the glandular structure of the breast be affected, while if the disease is confined to the cellular substance, the whole breast is equally tense.

Treatment.—As in cases of inflammation generally, resolution may be promoted, if possible, by the use of leeches, saturnine lotions, or those containing the muriate of ammonia, saline aperients, slightly nauseating doses of tartar emetic, and low diet: the breast should be carefully supported, subjected to gentle friction, and relieved from the milk at proper intervals, if any remain. When suppuration is inevitable, an emollient poultice and fomentations must be applied, and a cautious use of wine or tonics permitted, if much weakness prevails; the lancet should not be too readily employed in opening an abscess, which will generally break of itself, unless the affection assume a very chronic form, or give rise to great constitutional irritation. When sinuses form, they must be freely laid open with the probe-pointed bis-

toury and director: the indurations that frequently remain after the inflammation is subdued, will yield to frictions of camphorated mercurial ointment, or the application of soap plasters, and the internal use of small doses of calomel and cicuta.

Mr. Hey has described a deep seated abscess, but not of common occurrence in the breast, nor confined to suckling women; slow in supuration, and occasioning a scirrhus hardness in its neighbourhood; after its suppuration it forms numerous sinuses, filled up with fungus: a continued though tedious discharge, soon gives rise to hectic symptoms; the treatment of this excellent surgeon was to trace the course and lay open every sinus, and if in so doing one portion of the breast was left in an insulated or pendulous state, to remove that entirely, when a cure rapidly followed:—

II. Scrofulous Tumours. See *Scrofula* and *Tumours*.

III. Irritable Tumour. See *Tumours*.

IV. Hydatid Tumour. See *Hydatid* and *Tumours*.

V. Scirrhus and Cancer. See *Cancer*.

VI. Fungoid Tumour. See *Fungus Hematodes*.

BRONCHITIS. See *Lungs, diseases of*.

BRONCHOCELE, (from *βρογχος*, the wind-pipe, and *κηλη*, a tumour.) An enlargement of the thyroid gland, or a tumour generally, of a steatomatous character, and indolent in its nature, occupying the whole or part of that body; it generally commences about the eighth or twelfth year, is very slow in its progress for a considerable period afterwards, when it increases more rapidly, and at length forms a bulky pendulous mass, which may fill up the space from the angle of one jaw to that of the other, and form a considerable projection on each side of the neck, or even hang down upon the chest. It may exist simply as an enlargement of the thyroid gland, without the slightest malignancy, and only occasioning distress, by an interference with the respiratory functions from its size and pressure upon the trachea, or upper parts of the thorax, or by a slight interruption to the circulation by compression of the jugular veins, when headache and other unpleasant symptoms may be produced; or it may appear in a compound form, in which a more or less voluminous cyst is formed round it, filled with a pultaceous or purulent matter, or in which calcareous and other substances have formed.

The precise causes of Bronchocele are but little understood; its frequency in some of the valleys of the Alps, Appenines, and Pyrenees, where it is called *Goitre*, led to the supposition that it was occasioned by the constant use of snow water; but its frequent occurrence in Derbyshire, where it is known by the name of the *Derby neck*, and in various districts of England besides, its existence in the island

of Sumatra, and in South America, where snow is unknown, all prove that this circumstance cannot account for its production. It has been supposed to be allied to scrofula, but the single fact of the constitution remaining unaffected during its continuance proves the contrary. There is one peculiar circumstance attending this disease, that females are more subject to its invasion than men, and the fact may probably lead us to the clearest interpretation of its real cause. It is probably dependent upon excessive moisture, and that of a peculiar nature, such as valleys enclosed by mountains might be supposed to generate and determined to an organ peculiarly susceptible of its influence, and exposed to its operation, as in the case of females.

Treatment.—A remedy proposed by M. Alibert of Paris, and acted upon with advantage under his direction, will confirm the above remarks; that eminent physician has directed an immediate change of air as the surest cure of this affection, in its incipient stage, in the persons of Swiss ladies, who accordingly repaired to the French capital, and where the tumour subsided. A few years ago, and at the time when the first edition of this work appeared, burnt sponge was recommended as a specific for bronchocele, administered in the form of a troche or lozenge, in combination with burnt cork or pumice stone, and placed under the tongue, and there suffered gradually to dissolve; the reason for which this remedy was selected, was undoubtedly on account of the alkaline salts it held in combination, as the sub-carbonate of soda, together with the phosphate and carbonate of lime. Calomel, cicuta, belladonna, &c. have also had their advocates, until modern science suggested the use of a substance, the effects of which have exceeded all that have been hitherto employed, in the shape of *Iodine*, a new product of chemistry. (See *Iodine*.) This novel medicine has been employed both internally and externally, in the arrest of the progress of Bronchocele; when designed to act through the medium of the system at large, it may be administered in doses of from one quarter to one half a grain three times a day, carefully watching its effects, and discontinuing it if leading to disturbance of the general health; when designed as merely a local application, the substance may be mixed with lard in the proportion of from ten to twenty grains to an ounce.

The extirpation of the thyroid gland has been proposed by French surgeons, in this disease, and Desault and Hedenus of Dresden have succeeded in the operation; but the performance of it is attended by no common difficulties, and perhaps except in the event of an aneurismal enlargement of the organ, is unjustifiable, particularly after the discovery of Iodine as a means of cure. The thyroid arteries also have been tied with a view of cutting off the supply of blood to the tumour, for the mode of doing which, the reader is referred to the subject, Diseases of the Heart and Arteries.

BRONCHOTOMY. (Bronchotomia; from *βρογχος*, the wind-pipe, and *τεμνω*, to cut.) An operation required when respiration becomes impeded by disease, as in severe cases of croup, or when some foreign substance has made its way into the trachea; occasionally performed also in cases of suspended animation, to allow the introduction of a tube for the inflation of the lungs, if the passage by the mouth be spasmodically closed. When disease or accident requires this operation, the patient should be placed on his back with his head resting on pillows, and inclined backwards, as far as the difficulty of breathing will permit; the surgeon, sitting on his right-hand side, feels for the space between the thyroid and cricoid cartilages, directly over which, in the intermuscular division, he makes a perpendicular incision from half an inch to an inch in length, and then placing his left fore-finger on the ligament connecting the two cartilages to each other (the cricothyroid) he uses this as a director for a straight-bladed bistoury, into the air-tube, cutting a little laterally, on each side between the two cartilages; the opening may be farther enlarged, if insufficient for the purpose of free respiration, by continuing the incision downwards, so as to divide the cricoid cartilage. Mr. Lawrence has occasionally cut away a piece of this cartilage, to prevent the premature closure of the wound, preferring this plan to the insertion of a tube as in general practice, and which, he justly conceives causes excessive irritation and pain. When a foreign body is impacted in the trachea, the opening for its removal must be made in the same manner; but the incision should be carried through the first two or three rings of the trachea, according to the size of the substance to be withdrawn, carefully avoiding the superior branch of the thyroideal artery or the thyroid gland, and ascertaining their exact situation, with the point of the fore-finger, when they may readily be protected from the knife. If the substance be not immediately expelled by the force of the air passing from the lungs, through the artificial opening, which is frequently the case, it should be seized if possible by a small pair of forceps and brought away; the lips of the wound should then be brought together, and perfect rest enjoined for a few days.

In cases of suspended animation, the opening into the larynx may be made, as directed in the operation required in disease; a pipe then inserted, and attached to the proper apparatus, or even the nozzle of a pair of bellows, and the process of artificial respiration commenced.

BUBO—(from *βουβων*, the groin.)—By this term is meant a swelling of the lymphatic glands, particularly in the groin and axilla. This affection may proceed from three different causes: *irritation*, *absorption*, and *general affection of the system*; the first, which is also called *sympathetic*, arises from a local cause, such as the irritation of a violent gonorrhœa; the irritation occasionally produced after venesection,

when a bubo will form in the axilla, or from a slight wound in the knee or leg, when it will appear in the groin; the second cause, *absorption*, produces the true Venereal Bubo, which generally proceeds to suppuration, while the former readily yields to cooling regimen and applications; the bubo occasioned by *general affection of the system*, appears in *serofula*, in *fever* and *plague*, to all which subjects, as well as the *venereal disease*, the reader is referred for further information on the subject.

BUBONOCELE (from *βουβων*, the groin, and *κηλη*, a tumour.)
Inguinal Hernia. See *Hernia*.

BUCKTHORN BERRIES. *Rhamni Baccæ.* The berries of the *Rhamnus Catharticus*; class, *Pentandria*; order, *Monogynia*. Cathartic, in doses of the fresh berries ℥ j., of the dried, ʒ j. Syrup of Buckthorn, (*Syrupus Rhamni*) ʒ ss. to ʒ i.

BUCNEMIA, (from *βου*, a Greek augment, and *κνημη*, the leg.) *The swelled or tumid leg.* This disease has been introduced into the nosology of Dr. Mason Good, and is divided into two species: the puerperal tumid leg (*Bucnemia Sparganosis*) and the tumid leg of hot climates, (*Bucnemia Tropica*.) For a description of the first of these maladies, see *UTERUS, diseases and affections of*; with respect to the second, commonly known in the West Indies, by the name of the *Barbadoes-leg*, from its being indigenous to that island, although by no means confined to it; it was, in former days, confounded with the Arabian swelled-leg, elephant leg or elephantiasis, to which, however, it bears no resemblance, The tropical bucnemia, is occasioned by an effusion of coagulable lymph into the cellular membrane, under the skin of the part affected, in consequence of inflammation of the lymphatics of the lower limb, and especially of the inguinal glands, the cause of which is quite unknown. It is by no means clear, that this disease is essentially the result of inflammatory action in the lymphatics and glands, as we frequently see these organs affected by inflammation, without any symptoms occurring that resemble Bucnemia. In the works of Dr. Hillary, and in the observations of Dr. Graves, of Dublin, in the Transactions of the King's and Queen's College of Physicians in that city, Vol. v, several instances are given of enormous chronic growths, not only in the leg, but in the arm, scalp, ears, neck, loins, &c. where it has appeared that the lymphatics and glands could not be affected, and that the disease was occasioned rather from an inflammation of the skin, and subjacent cellular tissue.

In the tumid leg of hot climates, the skin becomes of a deep red, or purple hue, while the exuding fluid from the cutaneous exhalents, concretes into rough and sordid scales, and the skin itself becomes enormously thickened; the effusion is preceded by a febrile paroxysm, which afterwards recurs at irregular periods, every fresh attack adding to the

effusion and size of the limb; the inflammation gradually extends up the thigh, invading the genital and pubic regions, and in a few instances, the glands of the upper extremity participate with those of the lower, when the fore-arm and arm are also enlarged; the disease at length changes into a chronic form, the pain and suffering experienced in the early stages subside, and the skin becomes insensible; the functions of the system are but little disturbed, and the inconvenience of having so large a limb is alone complained of.

The symptoms of the disease, described by Drs. Hillary and Graves, differ essentially from the above; the limb is pale, the glands are unaffected, and in some instances, as in a case recorded by the late Mr. Chevalier, of London, the tumefaction arises from an extraordinary growth of the skin and subjacent adipose membrane only, quite independently of inflammation.

Treatment.—The febrile paroxysms should be alleviated by laxatives and diaphoretics, and the system subsequently strengthened by a liberal use of bark; it may be proper to endeavour to carry off the first effusion by active bleedings and purgatives, and then to administer tonics, sedulously guarding the patient from the effects of damp and exposure. Dr. Pulteney, in the 62d Vol. of the Philosophical Transactions, relates a case, where the juice of the roots of the hemlock dropwort (*Ceanothe crocata*) proved of singular service, notwithstanding the constitutional symptoms occasioned by its use. Amputation is of no avail, the disease invariably recurring in the stump, which will not heal, or in the other leg.

The milder form of the disease, as alluded to by Drs. Graves and Hillary, may be advantageously treated, antiphlogistically, by the application of leeches and cold lotions to the part, and the internal use of purgatives. During the intermissions of fever, a moderately tight bandage may be worn, and bark administered, and where that fails, small doses of arsenic, taking care to resume the antiphlogistic measures, whenever a febrile paroxysm appears.

In addition to the works quoted, see Dr. Mason Good's "Study of Medicine," and a book entitled "The Glandular disease of Barbadoes," printed in 1784.

BULIMIA (from *βου*, a particle of excess, and *λιμος*, hunger.) See *Appetite Canine*.

BURGUNDY PITCH. *Abietis Resinæ.* The Resin of the Spruce Fir (*Pinus Abies*) class, *Monœia*; order, *Monadelphia*; used as a stimulating plaster in pertussis, catarrh, and dyspnœa.

BURNS and SCALDS are more or less dangerous, according to the extent and violence of the injury, and its situation; they are generally divided into four varieties: I. Where there is only a redness of the skin, without

swelling or fever, and but slight accompanying inflammation. II. Where the redness is attended with swelling, sharp pain, and if the burn be extensive, with considerable fever. III. Where vesicles arise, either suddenly or gradually, containing a white or yellowish fluid; in this variety, the inflammation terminates in suppuration, having yielded to resolution in the former degrees, the symptomatic fever being proportionably acute. IV. Where the burnt part is at once deprived of its vitality, or so injured, that after violent inflammation, it mortifies; the pain is less violent, but the constitutional symptoms greatly and sometimes fatally aggravated. Scalds are generally less severe than burns, on account of heated fluids losing a part of their caloric in diffusion; they may, however, by spreading over a large surface, occasionally produce even a more alarming range of symptoms.

Although the danger arising from this description of injury, in general, corresponds with the characters stated in the above classification, it may yet be increased or modified by various circumstances, such as age or constitution, and whether it take place on the head, throat, chest, or abdomen, when the consequences are more to be dreaded, or upon the limbs, when they are not so material.

Treatment.—There are few subjects that have received a greater share of medical inquiry than this, and as few, upon which such contradictory evidence has been advanced; while one class of men have upheld a depressing treatment, and an antiphlogistic regimen, another have defended a practice precisely contrary, and administered tonics internally, and stimulants externally, while the Pharmacopœia has been ransacked for specifics to lull pain, and promote the peculiar action demanded by a favourite theory; these opposite doctrines have arisen in a great measure, from the habit of considering burns and scalds merely in one point of view, without reflecting that in the various stages of the different kinds of burns, arising from the time of accident, until the completion of cure, no plan can be depended upon to answer every indication. Mr. Cleghorn, a brewer of Edinburgh, who had paid much attention to the subject, from the frequent accidents occurring to his workmen, applied vinegar in all cases where the vitality of the part was not destroyed. Sir James Earle brought a practice in vogue, comprising applications of cold water or ice, with bleeding, purging, and the antiphlogistic regimen; while Dr. Kentish employed alcohol and turpentine, as local remedies, at the same time administering cordials and stimulants internally, subsequently dressing the wound with the yellow resinous ointment. Baron Larrey recommends the saffron ointment, spread on old linen, for slight burns, and for the most severe injuries, after the eschars have been detached, to effect which, and check the extent of sloughing, he employs the styrax ointment. In the extensive

Carron iron works in Scotland, a liniment has long been in repute, termed the *Linimentum Aquæ Calcis*, (which see,) for burns of every description, and it has also been admitted into general use in the British hospitals.

From such a variety of remedies, the practitioner may occasionally hesitate in his choice, but if the nature of the injury be recollected, the exercise of a sound judgment may avail him more than all the theories of others, and direct him to a safe and simple practice. It is correctly stated by Dr. Thomson, that in a slight injury of this nature, it matters little, whether vinegar, alcohol, or turpentine be applied, as they do not come in contact with any parts deprived of their cuticle, and the evaporation of the vinegar and alcohol tends to cool the parts; the application of ice or cold lotions, will relieve the pain in trivial burns, and may always be employed in the two first varieties, described at the head of this article. When vesications follow, they may, if of considerable size, be pricked with the point of a needle, and the fluid discharged without removing the cuticle, and if suppuration follow, an emollient poultice, or any mild simple dressings, such as the *unguentum zinci*, the *ceratum plumbi*, or the *linimentum calcis*, will readily heal the part; and even in the most severe cases, where the suppurative process is extensive, and the ulceration alarming, no better remedy can be devised than the poultice; and if the sore assumes an indolent character, the powder of myrrh or the *lapis calaminaris* may be sprinkled over it, previously to the application of the poultice; the ulcers arising from burns, are disposed to throw out fungous granulations, which may be repressed by bringing the edges of the ulcer together, by strips of adhesive plaster, provided the parts be not in a painful and irritable state; this plan also expedites the progress of cicatrization, and is infinitely preferable to those stimulating applications formerly used to keep down these fungous growths, as the nitrate of silver and mercurial escharotics; the former may in some cases, yet be employed. In sloughing burns, the treatment just described may still be continued with the fairest chance of success; an emollient poultice being not only the most soothing application to an acutely sensitive part, but admirably calculated to promote the separation of the sloughs.

If turpentine be ever a valuable remedy, notwithstanding the encomiums of Dr. Kentish, it is probably so, in those cases of extensive injury, where the vitality of the parts is severely affected, and where the surface is blackened; here it may restore a sensibility sooner than any other remedy, although frequently it is too greatly impaired to be regained by any assistance we can render.

It is necessary to state, that in all cases of severe burns, whether in depth or extent, cold applications must be avoided, on account of the

depression into which the system is thrown; and upon the same account, where we observe severe constitutional symptoms, such as shiverings and coma, stimulants must at once be resorted to.

In the generality of burns, unless when of a trifling description, so much inflammation will prevail, as to demand venesection, mildly aperient medicines, and a strict regulation of diet; the use of opium is indispensable in every instance, where severe pain and irritation exist, not only to diminish the suffering and procure sleep, but to counteract that tendency to convulsions, which so frequently prove fatal to burnt patients.

In healing an ulcer from the effects of a burn or scald, great care is necessary, in keeping neighbouring parts asunder, such as the fingers, chin and breast, &c., to prevent adhesions; when a severe burn has taken place in the region of the neck, it is almost impossible to prevent contractions, either drawing the lip on one side, or inclining the head itself to the side on which the injury occurred. Mr. Earl, of London, has performed two or three successful operations in such cases, but in general, the deformity is but slightly lessened by the use of the knife.

If a joint be injured, care must be taken to put it into motion as early as possible, in order to prevent ankylosis, but should that be inevitable, the position of the limb should be so arranged, as to render the greatest service to the patient afterwards.

BURSÆ MUCOSÆ—*Enlargement of.* The Bursæ Mucosæ, are mucous bags, or small membranous sacs, of different sizes and firmness, situated about the various joints of the body, and for the most part, lying under tendons where they pour out an oily kind of fluid, to lubricate the surfaces upon which the tendons play, in their passage over joints. These sacs occasionally become much enlarged, from a preternatural accumulation of this fluid, or obstruction of their mouths; induced by sprains, bruises, rheumatism, scrofula, &c. The swellings are generally unattended with pain, or redness, and are elastic. The contents of the sac, when enlarged from rheumatism, are fluid; from a scrofulous cause, of a thicker or mucous consistence; and of a concrete or cartilaginous nature, when occasioned by injury. When the swellings are not painful, or productive of much inconvenience, an attempt may be made to promote their resolution by fomentations, frictions with camphorated mercurial ointment, or blisters kept open with the savin ointment; but if these endeavours are found unequal to their cure, they may be opened either by puncture or seton, and their contents evacuated, taking care not to wound any tendons in so doing; the re-accumulation of fluid in the sac, may be prevented by the use of a firm compress and bandage.

CACHEXIA, (from *κακος*, bad, and *εξς*, a habit.)—A term used to denote a morbid state of the blood, or blood-vessels, alone, or connected with a morbid state of the fluids, producing a diseased habit.

CACHEXY, NEGRO. *Cachexia Africana*.—A disease common among the negroes in the West India islands, where it has been termed by the French, “mal d'estomac,” and by the English, “dirt eating,” from the singular propensity of the sufferers to eat dirt. Sonnini and Humboldt, describe the custom of eating dirt and clay, as existing in Egypt; and there, as elsewhere, it appears difficult to draw the line between unnatural appetite and actual disease. There may probably be some analogy between the affection and chlorosis, when the former occurs in the female sex. Dr. Thomas, in his practice of physic, traces an analogy between it and nostalgia, and thinks, that it is occasioned by hard labour, bad food, cruel treatment, and grief, in being separated from their friends and country; but this can hardly be a correct supposition; it attacks individuals in Egypt, not exposed to the evils alluded to, and also the inhabitants of the West Indies, who do not suffer from such an excess of feeling, having been born on the island. It may perhaps depend upon a morbid propensity, which acquires a triumph over the natural taste, and disposes the imagination to fancy disgusting articles as proper for food; from whatever cause, however, it exists, it should be met, by giving a counter-action to the organ in which it exists, by emetic and purgative medicines, and afterwards strengthening it with tonics; where acidity prevails, absorbent medicines may be resorted to with the best effect; indeed, one eminent writer imagines the possibility of an instinctive call for the dry earths, as direct absorbents, when this malady, or whatever else it may be termed, exists.

CÆSARIAN OPERATION.—See *Uterus*.

CAJEPUT OIL. *Oleum Cajuputi*.—Produced by distillation from the leaves of a Malabar tree, called Melaleuca Cajuputi; of the class Polyandria; order, Icosandria. Highly stimulating, antispasmodic, and diaphoretic, in paralytic, rheumatic, hypochondriacal, and hysteric affections, and employed both internally and externally; dose, from ℥ ii. to vi. or viii.

CALAMUS ROOT. *Radix Calami*. (Sweet Flagroot,) the root of the Acorus Calamus, a plant of the class Hexandria; and order, Digynia. Tonic, stimulant, carminative; dose, ℥ j. to 3 j.

CALCULUS, (the diminutive of calx, a limestone.)—By this term we understand, the formation of gravelly or stony substances in the viscera; they may be thus arranged. *Biliary, Intestinal, Renal, and Vesical Calculi*.

1. *Biliary Calculi*, (gall-stones,) are formed from the bile in the gall-bladder, becoming indurated, and assuming a concrete, and sometimes a crystallized or laminated form; we occasionally find that these substances partake both of a laminated and crystallized structure, having the rays in the centre, and concentric laminæ around. It is, perhaps, hardly correct, to class these concretions under the head of calculus, as their composition is precisely of the nature of bile, without the slightest mix-

ture of any gravelly or stony particles; but the common use of the term, Biliary Calculi, as applied to them, may justify the classification we have adopted. Four different kinds of gall-stones have been described.

1st. Concretions of a white, pale yellow, or greenish colour, of striated structure internally, and containing a nucleus of inspissated bile; of a soft and greasy feel, insoluble in water, but readily dissolved in hot alcohol: it melts at a considerable heat, giving out a smell, resembling that of wax, and on cooling recrystallizes; when suddenly exposed to a strong heat, it evaporates altogether in a thick smoke. Soluble in pure alkalis, and the solution has all the properties of a soap. This substance closely resembles spermaeti, in properties as well as appearance.

2d. A species of a gray colour externally, and brown within, formed of concentric layers of inspissated bile, round a nucleus of white crystalline matter; there are usually several of these substances in the gall bladder together,* they are light and friable, and are also of the nature of spermaeti.

3d. These are the most numerous, of a deep brown, or green colour, and presenting when broken, a number of crystals, of a substance likewise resembling spermaeti; these are soluble in alkalis, soap-ley, alkohol, and the oils.

4th. Concerning this species, but little is known; they are described as being insoluble in alkohol, and turpentine; not flaming when burnt, but becoming red, and consuming to ashes like charcoal.

For the causes and symptoms of the formation of these substances, see *Hepatic diseases*.

Intestinal Calculi, are more common in animals, especially those of the ruminating kind, or those which possess a long complicated digestive organ, than in man; when, however, they appear in the human subject, they are generally dependent upon an accidental origin, occurring after an injudicious use of prepared chalk, magnesia, or other calcareous earths, that have been employed to check a prevailing acidity. Calculi, thus formed, have been discharged by stool, and sometimes with great pain, when they have been rough or pointed at their edges; their composition, of course, depends upon the cause of their formation;

* In a post-mortem examination that fell under my observation, some years ago, of a case of hepatitis, where general jaundice prevailed with anasarca of the lower extremities, the gall-bladder was not discovered, but upon cutting into the liver, a cyst was opened, containing 40 gall-stones of this character; the cyst was surrounded by a mass of white substance, resembling the formation of tubercles; in the ductus communis, which appeared to be the only remnant of the biliary apparatus, five similar stones were found. In different parts of the intestinal canal, were hardened feces of a chalky whiteness; the arch of the colon was adherent to the liver, which viscus was not much enlarged, but presented on its surface, several white round tubercles; some adhesion of the intestines were also observed.—*Editor*.

the nucleus consisting of a concrete mass of any of the calcareous earths before named, with concentric layers of renewed materials, and animal matter deposited round.

Renal Calculi.—The calculous particles formed in the kidney, either pass off imperceptibly, or with considerable uneasiness to the patient, in the form of gravel or sand, or concrete and form masses in the pelvis of that organ; the sand that is so frequently observed in a chamber utensil, is either *white or red*, each proceeding from different causes, and naturally requiring a different treatment. The urine in a healthy state, is essentially acid, holding earthy salts in solution; when this acid is diminished from any cause, the earthy salts are no longer held in solution, and separate, in the form of a *white sand*. When the acid is in great excess, and the secretion of the earths is deficient, the acid forms a deposit, crystallizing into minute and red spiculæ, thus occasioning the production of *red sand*.

The gravel, so called, when the particles of sand congregate into a mass, may also either pass into the bladder, or remain impacted in the pelvis of the kidney; a specimen is preserved in the Museum of the Royal College of Surgeons, in London, of a calculus, removed from the kidney after death, that weighed seven ounces and a half. **Renal Calculi**, to deserve that name, must exist in the kidney, becoming **Vesical Calculi**, when they are expelled therefrom; their composition has been accurately ascertained by Drs. Marcet and Prout, which will be better treated of under the next division.

Vesical or Urinary Calculi, vary from the weight of half a drachm, to that of several pounds, a stone of the weight of forty-four ounces, and sixteen inches in length, having been removed from the body after death after an ineffectual attempt to extract it, during life; the composition of these substances varies as much as their size; they have been arranged by Dr. Marcet, in the following eleven varieties:

1st. **Lithic Calculus**, composed chiefly of lithic or uric acid; hard, inodorous, of a reddish brown or fawn colour, sometimes smooth, at others, studded with fine and regular tubercles; with concentric lamellæ in the interior, and presenting an imperfectly crystallized texture when broken; soluble in caustic potash, and precipitable again, in the form of a fine powder, by the action of any acid; it blackens by exposure to heat; the smoke having a very strong odour, and leaving a small quantity of white alkaline ash after fusion; by adding a minute quantity of nitric acid to the powdered calculus, and then submitting the mass to heat, the lithic acid is dissolved, and, on evaporation, we obtain a carmine coloured residue.

2d. **Earth-bone Calculus**, consisting chiefly of phosphate of lime, is of a pale brown, and polished surface; laminated and easily separated into

distinct layers ; it is not fusible, becoming black upon exposure to heat, and then turning white, undergoing no change afterwards ; by increasing the temperature after its solution in muriatic acid, which readily dissolves it, the lime may be precipitated by the oxalate of ammonia.

3d. *Ammoniac-magnesian-phosphate, or triple Calculus*, is formed, as its name denotes, of the phosphate of ammonia and magnesia ; its surface is nearly white, uneven, and covered with minute shining crystals of a short trilateral prism ; it is less compact than the calculus of phosphate of lime, not laminated and easily broken ; it emits an odour of ammonia before the blow-pipe, and becomes opaque. It is soluble in dilute acids.

4th. *Fusible Calculus*, is composed of a mixture of phosphate of lime, and the triple phosphate of ammonia and magnesia ; it is next to the lithic calculus in frequency, is white and friable, easily melts, and is readily dissolved by acids. The blow-pipe will reduce a large portion of it into a white vitreous globule ; the laminæ are not obvious.

5th. *Mulberry, or Oxalate of Lime Calculus*, was first described by the late Dr. Wollaston ; it is of a dark brown colour, with a rough and tuberculated surface, hard and imperfectly laminated ; before the blow-pipe, it expands into a kind of white efflorescence, which when moistened, turns paper of syrup of violets, green, and paper of turmeric, red.

6th. *Cystic Calculus, or Cystic Oxide Calculus*, also first described by Dr. Wollaston, is of rare occurrence ; it is of a white or yellowish colour, semi-transparent, and generally smooth on the surface ; it somewhat resembles the triple phosphate of ammonia, and magnesia calculus, but is more compact, and possesses no distinct laminæ ; when broken, it presents a waxy and confused crystalline mass, and when exposed to heat, it yields a faint and peculiar smell. This substance is soluble both in acids and alkalies.

7th. *Alternating Calculus*, is a concretion formed of two or more different species, arranged in alternate layers ; its general composition consists of a nucleus of the lithic or mulberry calculus, surrounded with the formation of the fusible calculus, but in some instances three, or even four varieties, may enter into the formation of nuclei, as well as of the surrounding deposits.

8th. *Compound Calculus*. This term has been affixed to a variety, when there has been a greater confusion observed in its composition than is recognizable in most cases of alternate calculus.

9th. *Calculus of the Prostate Gland*, consists of the phosphate of lime, not distinctly stratified, and tinged by the secretion of the prostatic gland ; it was first described by Dr. Wollaston.

10. *Xanthic Acid Calculus*, makes an approach to the Cystic Oxide Calculus, from which it is hardly to be distinguished ; it differs, how-

ever, in one chemical quality, that of giving a bright lemon residuum, on evaporating its nitric acid solution.

11. *Fibrinous Calculus*, is so called from its possessing properties exactly similar to those of the fibrine of the blood, and is doubtless formed by a deposit from that fluid.

To all these varieties, Dr. Prout adds another, which he terms *The Lithate of Ammonia Calculus*; he describes it as being generally small, of a clay colour, and either smooth or tuberculated; it has concentric laminæ, and when fractured, resembles a compact limestone; it is more soluble than any of the other calculi, and gives off a strong smell of ammonia, on being heated with caustic potass. Dr. Prout, in his arrangement, does not afford such an extensive list of varieties, but in referring all calculi to their elementary proportions, describes only four classes. 1st. Those of Lithic Acid and its compounds. 2d. Those of Oxalate of Lime. 3d. The Cystic Oxide Calculi, and 4th. Those of the Earthy Phosphates. From a table drawn up by this author, from several museums, in which were 823 Calculi, the comparative frequency of each species was thus stated:—Lithic Acid 294, Mulberry 113, Phosphates 3, Alternating Calculi 186, and Mixed Compound 25.

For information respecting the causes, symptoms, and treatment of Calculi, Renal and Vesical, see "Diseases of the Urinary Passages."

The best works on calculous disorders, are the following: "An essay on the Chemical History and Medical Treatment of Calculous Disorders," by Dr. Marcet, (London.) W. T. Brandens "Observations on the Medico-chemical Treatment of Gravel, Calculus, &c." Prout's "Inquiry into the nature and treatment of Gravel, Calculus, &c." "The Philosophical Transactions of London of 1810," and the 8th Volume of the "Medico Chirurgical Transactions."

CALIGO. A disease of the eye, in which the sight is impaired by the interposition of a dark object between the retina and the object. See *Eye*.

CALLUS. The bony matter deposited at the extremities of fractured bones. See *Fractures*.

CAMPHOR. *Camphora.* A concrete substance prepared by distillation from the *Laurus Camphora*, or Camphire tree; class, *Enneandria*; order, *Monogynia*; a native of India and Japan. Narcotic, diaphoretic, sedative, internally; externally anodyne; for the first mentioned purposes, in doses of from five to fifteen grains; combined with carbonate of ammonia, stimulant; with opium, directly sedative; and with antimonials febrifuge. Employed in typhoid and exanthematous attacks, and also in maniacal, pneumonical, and general inflammatory affections. For external use, it is dissolved in oil, or alcohol, and applied as a liniment.

Official preparations.—Camphor Mixture (*Mistura Camphoræ*) $\bar{3}$ ss.

to $\frac{5}{8}$ ij. generally united with cordial tinctures. Spirit of Camphor, (*Spiritus Camphoræ*) usually employed as a discutient application. Compound Tincture of Camphor, or Opiated Tincture of Camphor, (*Tinctura Camphoræ Composita, vel Tinctura Opii Camphorata*) 3j. to δ iij. as an anodyne. Camphor Liniment, (*Linimentum Camphoræ*) a discutient.

CANADA BALSAM. *Terebinthina Canadensis*. One of the purest turpentine yielded from the *Pinus Balsamea*; class, *Monœcia*, order, *Monadelphia*. Similar in its properties to the other turpentine. See *Turpentine*.

CANCER, (from *καρκινος*, a crab.) *Carcinoma*. *Scirrhus*. *Scirrhus*, and *Cancer*, says Dr. Baillie, have generally been used as terms to express two stages of the same morbid affection; *Scirrhus*, signifying the occult, and *Cancer*, the ulcerated state of the disease. The question, whether Cancer is a constitutional or local, an hereditary or occasional disease, has led to much dispute in the medical world; that it is an inflammatory affection of a specific character, no one can doubt, and when we add, that a cancerous disposition or diathesis, is generally necessary for its production, and that it is *occasionally hereditary*, as proved from the numerous cases of many members of the same family having been attacked, without a sufficient cause for its occurrence unless a constitutional predisposition existed, it is very evident to which side of the controversy we incline, although in opposition to those great authorities, Dr. Baillie and Mr. Abernethy, who regard it strictly as a local affection. If we dismiss the idea of a predisposition to this disease, it is most difficult to imagine how, in so many instances, the slightest blow shall be succeeded by scirrhus and rapidly approach the ulcerative stage, while in others, an injury more severe in its nature, and exactly in the same situation, shall not be followed by one uneasy sensation; the occurrence of *scirrhus* tumours, in other parts of the body, when once the disposition for their formation has been called into action, will support the opinion of cancer being more a constitutional than a local affection.

With respect to its hereditary nature, it is by no means intended to say that the descendants of an individual afflicted with this disease, are necessarily exposed to attack, but simply that they are more subject to its influence than others. *Scirrhus* in its primary form occurs in various organs, chiefly in the *mammæ*, *uterus*, *ovaria*, *testicles*, and *thyroid gland*; and it also attacks the *skin*, (either in the form of a *scirrhus* wart or tubercle, the first being a primary and the other a secondary affection,) the *mucous membrane* lining the *nose*, *mouth*, and *pharynx*, the *œsophagus*, the *stomach*, the *intestinal canal*, and the *bladder*—secondarily affected, are the *lungs* (rarely) *liver*, *omentum*, *mesentery*, *spleen*, *pancreas*, *brain*, and the *medulla of the bones*. Of all these, the parts

most usually attacked are the breast and uterus of the female, which appear to be peculiarly susceptible of the disease, at the time of the cessation of the menstrual discharge. The commencement of scirrhus in the breast is denoted by the presence of a small tumour, either brought on by a blow, or occurring, without any apparent cause, hard in its nature, circumscribed, and moveable; sharp lancinating pains shoot occasionally through the tumour, which gradually increases in size and weight, frequently having a knotty or irregular surface as the disease advances; after some time, the pain recurring at shorter intervals than before, the skin assumes a dark lead colour, is corrugated; the tumour itself becomes less moveable, from an adherence to the adjacent parts; while the absorbent glands in its neighbourhood begin to display a participation in the disease. By degrees the leaden hue of the skin disappears, and a redness succeeds the prelude to the commencement of the ulcerative process, which changes the name of Scirrhus to that of Cancer. A bloody discharge now appears, a fœtid ichor is secreted, the edges of the ulcer are everted and irregular, few granulations arise, and these quickly degenerate into inveterate funguses. Thus it appears in how imperfect a form the inflammation is begun and continued in this disease; in the adhesive stage, a hard matter is thrown out, instead of the usual kind of adhesive matter; in the suppurative stage, an acrid and fœtid ichor is poured out, instead of bland pus; and the granulations are hard, insensible and everted, instead of being soft, yielding, and uniting as in a healthy intention of nature. The cancerous ulcer rapidly spreads, destroying all before it; even the bones do not escape, being frequently rendered so brittle as to fracture upon the application of the slightest force, and proving incontestibly the great change wrought upon the system at large, by the operations of this terrific malady. Vomiting, and other symptoms announcing the mischief within, and how severely the digestive and other functions are deranged, quickly ensue with the extension of the disease, until hectic fever appears, and the sufferer sinks, under the effects of pain, anxiety, and exhaustion.

Treatment.—Notwithstanding the pretensions of the empirics of former and the present times, the public are not readily deluded into a belief that any mechanical or medicinal treatment can effect a cure of this horrible disease; numerous plans have been adopted, even by men remarkable in their profession for skill and acquirements, but without success; the sober conviction that the knife promises the fairest chance of safety, has taken the place of former theories and remedies, and is now acted upon without reserve, by every well informed surgeon; too often, alas! we discover that its use is not attended with final success; the disease is extirpated for a time only to re-appear with additional

malignity, or it is removed from one situation, merely to occasion its appearance in another. Cicuta, belladonna, digitalis, the preparations of mercury and arsenic, of iron and barytes, have been resorted to in fruitless expectation, that their powerful action would counteract the effects of the disease, and arrest its progress; some of them may occasionally be employed as palliatives, but no rational expectation may be indulged, that they will act further. Pressure was advised a few years ago, and several cases were detailed, in which it had been supposed to exert an uncommon advantage; but there are two reasons why this recommendation has not met with much attention from the medical world; in the first place, it is by no means clear that in those cases, where it is said to have effected a cure, that cancer really existed; it has long been the practice of some surgeons, to apply pressure to a hard fleshy tumour, with a view to its more ready absorption, and to such a tumour, it is presumed has pressure been directed, when cancer has been said to be cured by a compress, and tight bandages: in the second place, pressure is not applicable to an inflammatory and malignant tumour; one very melancholy case fell under the observation of the writer, when it was attended with the most lamentable result; a small scirrhus tumour in the breast, towards its axillary margin was subjected to this treatment; within five weeks, the glands in the axilla became affected, rapidly took on the ulcerative process, and in less than two months the wretched patient sunk under hectic; effects similar to these will probably be produced, whenever pressure is employed in the treatment of the genuine cancer; it is idle to imagine, that a constitutional predisposition can be overcome by the application of a bandage, and the practitioner who relies upon this mode of cure, may depend upon it, that if he prevent thereby the growth of one solitary tumour, he does it at a risk of numerous others appearing, and taking on, with additional force, the action he has endeavoured to restrain. The only plan of treatment; besides an operation, strictly justifiable (for a perseverance in the medicines before named, produce the worst effects upon a system already enfeebled by disease, and still needing so much vigour to sustain further inroads,) consists in cold lotions, and the employment of leeches, with a mild and un-irritative diet, while the tumour is yet scirrhus, and in carrot poultices frequently renewed, and occasional doses of opium to allay suffering, when it becomes cancerous. The operation of extirpation is, however, the only plan that promises success, and should we even be deceived in our expectations, which is not improbable, we have still the consolation of having attempted all that reason and sound judgment could sanction. The operation of the removal of a scirrhus tumour (of course the employment of the knife is only justifiable in this stage, or while the system does not appear to be materially affected) may be thus performed,

Where a small tumour merely occupies a situation above the mammary gland, without being adherent to it, a perpendicular incision should be made over the tumour, the integuments dissected back, and the diseased part removed, together with every portion of surrounding substance affected; bringing the parts together, in order to heal them by the first intention, thus finishing the operation. When, however, the tumour is firmly attached to the gland, or that organ itself is in a scirrhus state throughout, the operation for its removal must be performed in the following manner:

The patient being seated on a chair, the operator places himself before her, when an assistant puts the pectoral muscle on the stretch by raising the arm from the side. The operator then, with the fingers of his left hand placed parallel to the course of his first incision, draws the integuments tense, and makes the cut on the outer and under side of the tumour, of a semilunar form, extending obliquely from above downwards. The corresponding incision is then to be made, beginning and terminating at the same points as the former, but passing on the other side of the tumour, enclosing as much of the integument as may be deemed sufficient, which the operator puts on the stretch by pressing it from him with his left thumb. The dissection, commenced at the upper and outer part, is to be continued obliquely from above downwards, in the direction of the fibres of the pectoral muscle, till the tumour is separated.

If the dissection be attempted from below upwards, it is probable that the lower edge of the pectoral muscle will be raised; and if it be continued from the inner incision, the blood collects before the point of the knife, obscuring the dissection and rendering it more tedious.

Should a gland in the axilla be enlarged, the incision must be extended so as to remove it with its connecting medium. It should first be raised from its seat with a double tenaculum, and then cut away; this, pulling it from its situation, prevents the artery leading to it from retracting so as to escape detection after being divided. Hæmorrhage occurring during the operation, may be restrained by the assistant pressing his finger on the bleeding orifices till the divided arteries can be secured by ligatures. The borders of the wound are to be approximated by adhesive plaster.

The cancer of the uterus, occurs next in frequency to that of the breast; the cervix is generally the part affected. During the stage of scirrhus, the symptoms resemble those of polypi, and procidentia, such as a sense of weakness and pain; leucorrhœal discharge bearing down, and deep seated lancinating pains throughout the pelvis; upon examination, the os tincæ is found thickened, indurated, and somewhat dilated; the digestive functions, and, of course, the general health, sympathize, and are more or less deranged, according to the severity

of the disease. When the ulcerative stage commences, a constant discharge of a bloody sanies takes place, and sometimes a copious hæmorrhage; the os tincæ becomes more open, and beset with rugged irregular edged ulcers, which are exceedingly painful when pressed upon; the vagina is hard, and thickened, its rugæ less distinct than natural, and the ulceration at length extends to it. Enlargements of the glands of the groin, vomiting, hectic, and the usual train of symptoms ensue, and rapidly terminate existence.

In former days, nothing could be attempted for the cure of cancer in this part, with a prospect of success; the same treatment, as described under Cancer of the Breast, was employed, and the same results followed; while the miserable patient was daily convinced, under their failure, that death was preferable to her life of continued suffering; the proud distinction of being the first successful operator, in the extirpation of a cancerous uterus, must be awarded to Dr. James Blundell, of London, a man nobly distinguished in the medical circles for skill and humanity; this physician proposed and executed the bold plan of extirpation, in the full conviction that it was the only chance of preserving life; and although it has not been, and, in future, may not be uniformly successful, it yet presents, in common with all operations for cancer, a remedy that may stay, if it cannot totally subdue the disease. The operation as described by Dr. Blundell, will be found under the article, *Uterus*, to which it is referred, as it may be demanded in other cases as well as cancer.

When cancer attacks the male, the *testicle*, and *lip*, are the situations usually selected for its ravages. In the former, it is fortunately very rare, although many diseases of that organ having been confounded with it, have given it more notoriety than it is in truth entitled to. Sir A. Cooper has seen very few instances of true scirrhus diseases of the testicle, and certainly no man has had greater opportunities of investigating every ailment, requiring the assistance of the surgeon. When the disease does occur in this organ, it may commence either at the anterior or posterior part, or in several parts at the same time; giving rise in the one instance to a hard and circumscribed tumour, or in the other, occasioning several knotty and irregular masses; the testicle soon increases in size, and becomes of a stony hardness, in which condition it generally remains for a considerable period before the ulcerative stage commences; this is also characterized, from other cancerous affections, by the peculiar slowness of its progress; the epididymis and spermatic chord at length become contaminated, by which, the disease is conducted into the cavity of the abdomen, where it rapidly proves fatal. The surest marks of diagnosis, are the peculiar laminating pain#

always accompanying cancer, the gradual increase, and peculiar hardness of the tumour.

The necessary treatment in this affection, consists in an extirpation of the testicle, before the disease is communicated to the spermatic cord, and the operation may be performed, in the mode directed under the head *Castration*.

The Cancer of the Lip, is not of unfrequent occurrence ; in a large hospital we can seldom walk the wards, without perceiving more than one example of it ; the under lip is generally the sufferer, and out of forty or fifty cases, the writer has not witnessed more than three instances where cancer attacked the upper ; it usually commences in the form of a wart-like excrescence, which has occasionally been produced from the frequent irritation of shaving, over a slightly abraded surface, in individuals of a cancerous diathesis ; the question has been raised in Great Britain, whether, in such persons, the short pipe used in smoking, may not be considered as a cause of the disease in this part ; no care is taken to wax the clay, so that, after the pipe has been held in the mouth for a few minutes, and suddenly removed, a small particle of the cuticle is torn away with it ; the tube being again and again applied to this surface greatly irritates it, while the pipe in time becoming old, and saturated with the essential oil of the tobacco, which extends from the bowl, to the end placed in the mouth, adds to the irritation, and at length converts the primary sore into a secondary malignant and cancerous ulcer, especially when the system is prone to its encouragement. When the usual ulcerative process has commenced, its progress is rapid, and attended with the same symptoms as prevail in attacks of a similar nature in other parts ; the disease will gradually extend to the sub-lingual and sub-maxillary glands, and occasionally to the parotid, and prove fatal by its usual mode of termination, hectic. As in other cases of cancer, an operation offers the readiest mode of relief, if not of cure ; and in performing it nothing more is necessary than to include the tumour, and the parts around it that are affected, within two incisions meeting in a point below the tumour, or above it if the disease happens to be situated in the upper lip ; then to bring the divided edges together, and retain them with adhesive plaster or a suture, if it should be judged necessary from the width between them ; some Surgeons bring the divided surfaces together by pins, as in the case of an operation for Hare-lip, (which see,) and this plan may be justifiable in many cases. Several ill-conditioned sores of the lips have been confounded with cancerous ulcers ; a distinction must be made between the lancinating pains, the hardness, and the indolence of the one, and the want of these characters in the other, which latter

will readily yield to an alterative plan of treatment, and the exhibition of a little aperient medicine.

Cancers of the Eye Lid, and in various parts of the face, are subject to the same symptoms, and should be treated in the same manner, as those already described; the recommendation of an operation in the early stage of every cancer, where the knife can be used with safety, can hardly be too often insisted upon. There is a peculiar variety of this disease, termed the *Chimney Sweep's Cancer*, or *Cancer Scroti*, which is endemic to Great-Britain, and brought into action, solely from the irritation of the soot lodging in the rugæ of the scrotum, and sometimes, although very rarely, in the foot and on the back of the hand; one of the parents of modern surgery, Mr. Pott, first noticed this disease, as being of a cancerous origin; it makes its appearance in the form of an indurated tumour, beneath the cellular substance, changes next into an ill-looking ragged ulcer, which soon extends to the testicle, is rapidly extended to the spermatic cord, and glands of the groin, destroying all before it, and ultimately the life of the patient. The knife is here our best friend, and if employed in the early stage, by removing the diseased skin and cellular substance, may effect a cure; if the testicle be engaged in the disease, that organ must be removed, and in the manner directed in the article Castration; when the glands of the groin are affected, the case is hopeless, and our treatment must be limited to palliatives.

There remains but one more organ in which cancer makes its appearance, and that is the *Eye*; many other diseases of this organ have been mistaken no doubt for cancer, but we can readily detect its exact nature, by the deep-seated, lancinating pain, which is frequently periodical, the ragged-edged ulcer, and the fetid discharge; when the disease is superficial, and seated over the cornea, a careful dissection may remove the cancerous mass, but abundant care must be exercised to leave nothing behind that will lead to a renewal of the affection.—When the cancer is seated deeper, no plan can be adopted but the extirpation of the eye from the orbit; for the manner in which this operation is performed, see *Eye*. See *Cooper's* (Samuel) works; *B. Bell's* surgery; Justamond "on cancerous and schirrhous disorders;" Article "Cancer" in *Rees's Cyclopædia*; *Baillies* "Morbid anatomy;" *Pearson's* "Practical observations on Cancerous complaints;" *Abernethy's* works, &c. &c.

CANELLA BARK.—*Canellæ Cortex*—from the Canella tree. Class, Dodecandria; order, Monogynia. Stimulant and carminative, in doses of from grs. x. to ʒ ss.

CANTHARIS.—*Cantharides*—Spanish or Blistering fly, chiefly brought from the South of Europe, particularly from Spain, where they

are very abundant. Internally; stimulating, diuretic, emmenagogue, and given in cases of dropsy, gleet, leucorrhæa, retention and incontinence of urine, in doses of gr. ss. to i. in pill. Externally; rubefacient and vesicant.

Official preparations. Tincture of Cantharides, (Tinctura Cantharidis, ℥ x. to ʒ j. diuretic, and stimulant, in gleet, dropsy of the ovaries, and leucorrhæa; externally in conjunction with soap or camphor liniment against rheumatic pains, &c. Plaster of Cantharides, (Emplastrum Cantharidis.)

CAPSICUM BERRIES. *Capsici Baccæ.* Produced from the Capsicum Annuum, a plant of the class Pentandria, and order Monogynia, and from which, we derive the *Cayenne*, or *red pepper*. Stimulant, internally in doses of from grs. v. to grs. x. in pills, or ʒ j. to ʒ ij. of the *Tincture*, (Tinctura Capsici,) in cases of atonic gout, dyspepsia, &c. Externally, it is employed as a cataplasm, in coma, and the delirium of Typhus. It forms in the following combination, one of the best gargles in Cynanche Maligaa, and Searlatina. R Capsici pulv. ʒ j. Muriatis Sodæ, ʒ j. Aceti. ʒ iv. Aquæ ferventis, ʒ vj. Cola.

CARAWAY SEEDS. *Carui Semina*, (from *καρος*, so named from Caria, a province of Asia.) The seeds of a plant of the class Pentandria; and order Monogynia. Carminative and stomachic in operation; chiefly employed in the following *Official preparations*: Oil of Caraway, (Oleum Carui,) ℥ j. to ℥ x. Spirit of Caraway, (Spiritus Carui,) ʒ i. to ʒ ss.

CARBUNCLE. See *Anthrax*.

CARCINOMA. See *Cancer*.

CARDIALGIA, (from *καρδία*, the cardia, and *αλγος*, a pain,) the *heart burn*. An uneasy sensation experienced at the stomach, and extending up the œsophagus to the palate, with inclination to vomit, when a clear though nauseous fluid is discharged. Dr. Cullen considers this affection as a symptom of dyspepsia, although it may arise from many causes, such as flatus, worms, &c. or the pressure of acid in the stomach, in too large a quantity.

Treatment. A dose of magnesia or the carbonate of soda, or the infusion of bark with lemon juice, according to some authors, will usually relieve the present symptoms, and their return must be prevented by a due regulation to diet, and an occasional recurrence to mild aperient medicines.

CARDAMOM SEEDS. *Cardamomi Semina.* The seeds of the Amomum Cardamomum, of the class Monandria; and order Monogynia. Carminative and stomachic, in doses of grs. vj. to ʒ j.

Official preparations. Tincture of Cardamom, (Tinctura Cardamomi) ʒ j. to ʒ iv. Compound Tincture of Cardamom, (Tinctura Car-

diamoni Composita) same dose, and both having the same operation as the seeds.

CARDITIS, (from καρδιά, the heart,) *Inflammation of the Heart.* See *Heart*.

CARIES. See *Bones*, diseases of.

CARMINATIVES, (from carmen, a verse or charm, from the old superstition of their operation depending upon a charm.) That class of medicines, administered to allay pain, and dispel flatulency; the principal carminatives, are, cardamom, aniseed, caraway, cinnamon, ginger, and the whole class of aromatic stimulants.

CASCARILLA, the bark, from the Croton Cascarilla; class, Monœcia; order, Monadelphia, (Cortex Cascarillæ.) Tonic and carminative in operation, and administered in doses of from grs. xij. to 5 ss. in ague as an adjunct to cinchona, in dysentery, dyspepsia, and colic.

Official preparations. Tincture of Cascarilla, (Tinctura Cascarillæ) 5 i. to 5 iv. Infusion of Cascarilla, (Infusum Cascarillæ) 3 iss. to 3 ij. twice a day. Extract of Cascarilla, (Extractum Cascarillæ) grs. x. to grs. xx. all of the same operation as the bark.

Incompatible, with infusion of galls and yellow cinchona, lime water, and solutions of sulphate of iron, nitrate of silver, and acetate of lead.

CASSIA PULP. *Cassia Pulpa*. Expressed from the seeds of the Cassia Fistula, a tree of the Indies; class, Decandria; order, Monogynia. Mildly laxative, in doses of from 5 iv. to 3 iv.

Official preparation. Confection of Cassia, (Confectio Cassiæ) 5 j. to 3 ij. a gentle cathartic for children.

CASSIA MARILANDICA. *American Senna*. Similar to the Alexandrian, but less active; dose, 3 i. of the leaves, in infusion.

CASTOR. *Castoreum*. Castor Fiber, the systematic name of the Beaver, from which animal it is procured; the name castoreum, is applied to two bags in the inguinal regions of this animal, where the substance is secreted. Antispasmodic and emmenagogue, in doses of grs. x. to ʒ j. and given in cases of hysteria, epilepsy, typhus, and amenorrhœa; sometimes administered in the form of a clyster, in the proportion of 5 j. to iv. or vj. 3 of fluid. Tincture of Castor, (Tinctura Castorei) 5 i. to 5 iij. for the same purposes as the substance.

CASTOR OIL. *Oleum Ricini*. An oil extracted from the seeds of the Ricinus Communis; class, Monœcia; order, Monadelphia. Mildly purgative, in doses of from 3 ss. to 3 iss. administered in spasmodic affections, and colic, and very generally in the common diseases of children, where a laxative is required.

CASTRATION, (from Castro, to emasculate.) The operation of removing a testicle, for cancer, fungus hæmatodes, sarcocœle, &c. (See diseases of that organ.) The operation may be thus conducted:—The

patient being laid upon a table of convenient height, the first incision should commence at the spot where it is intended to divide the spermatic cord, and be continued down nearly to the bottom of the scrotum; the freedom of this incision will greatly tend to prevent those lodgments of matter which so frequently retard the cure, when the knife has been too timidly employed in this stage of the operation; a number of small arterial branches, from the external pudendal artery, are of course divided, and should be tied, if the hæmorrhage be profuse; the second stage of the operation is to expose and detach the spermatic cord, from the surrounding fat and cellular substance, by making a short incision on each side of it, at the point of its intended division, and then having slightly raised it, dissecting it from the subjacent parts, until it can be grasped with the thumb and fore-finger. A portion of omentum, and a hernial sac, have occasionally assumed the appearance of thickened cellular membrane, and even have been divided as such, either during the above dissection, or when the cord has been cut; the necessity of extreme caution is therefore evident, when the possibility of such a circumstance is considered. The third stage is the division of the cord; this of course must be accomplished through the part higher than the disease has extended. The old mode of including the spermatic nerves, vas deferens, and cremaster, in a ligature before cutting the cord through, is now deservedly exploded, both from the excruciating agony it occasioned the patient, and from the constitutional symptoms that usually followed such barbarous treatment; in later days the vas deferens has been excluded from the ligature, but even this improvement is not deserving of imitation; the better plan is to apply no ligature at all to the cord previously to its division, but to hold the part between the left thumb and fore-finger, just above the point where it is to be cut through, which may be done as near the testicle as the extent of the disease will allow; the admirable procedure of Desault may now be followed; that surgeon, after the division of the cord as above related, immediately proceeded to take up the spermatic vessels (held between the thumb and fore-finger) with the tenaculum, and secure them with fine ligatures, and then dissected the diseased testis from the scrotum. The small artery of the vas deferens will sometimes require a ligature, when the edges of the incision may be brought together with strips of adhesive plaster, (sutures are still, and perhaps needlessly, employed in these cases,) a pledget applied over the wound, light compresses laid on each side of the incision, and the whole supported by a T bandage. Union by the first intention, is hardly to be expected, but the attempt is infinitely preferable to the French plan of stuffing the scrotum with charpie, and encouraging suppuration, and generally accomplishes a perfect cure in two or three weeks. The great advantage of Desault's mode of operating, consists in the command we have of the spermatic cord, by which its

retraction is prevented, and the ease with which the necessary ligatures are afterwards applied.

After the operation, considerable disturbance of the system may prevail, with much pain in the wound; to counteract this, small doses of opium may be given, and leeches applied to the scrotum; and should very severe inflammation set in, venesection and the usual antiphlogistic measures must be immediately adopted.

CATARRH. *Catarrhus* (from *καταρρεω*, to flow down.) This disease consists of two species: I. *Catarrhus a frigore*, or common cold in the head or chest; and II. *Catarrhus Epidemicus*, or Influenza.

The first variety, so common in every country, is usually caused by a sudden suppression of perspiration from cold, rapid changes of the atmosphere, and a continuance of damp weather, and which invariably furnish us with a number of examples.

Symptoms. Heat, fulness, and obstruction of the nose with coryza, or increased secretion of mucous from the living membrane, or a thick acrimonious ichor, which excoriates in its passage; oppression at the chest, with slight difficulty in breathing; cough, hoarseness, and soreness of the fauces and trachea; cold shiverings and flushings of heat alternately, and an increase of all these symptoms towards night, with slight febrile exacerbation. This affection is not at all dangerous in itself, and only becomes so from frequent renewal, when a constant irritation disposes the patient to a pulmonary attack; in consumptive habits, however, it occasionally appears as the precursor of a regular phthisis.

Treatment. In the milder cases, little more is necessary than a few days of repose and abstinence, a perseverance in diluent drinks, and additional warmth, to promote perspiration; when, however, the febrile symptoms are severe, or there is great oppression of the chest, venesection, and a brisk cathartic must be resorted to, and should a difficulty of breathing continue, a blister to the chest should follow the use of the lancet, and diaphoretics administered, in conjunction with medicines of the demulcent class, such as flaxseed tea, almond or gum mixtures, &c. and should a chronic cough remain after the acute symptoms have yielded, with expectoration, restlessness and debility, which is usually the case in old persons, slight doses of opium, Dovers powder, (*Pulvis Doveri*), and the application of a warm plaster to the chest may be recommended, and also very small doses of the Prussic acid. This affection is occasionally met with as a symptom in other complaints, such as measles, small pox, worms, dentition, rheumatism, &c.

The second species, or Influenza, as it is commonly termed, differs from the preceding, in its cause, in the severity of its symptoms, and usually in the rapidity of its course and termination. The cause has

been variously accounted for at different periods, from the time of Hippocrates to the present day ; its occurrence in every season of the year, its arbitrary return and disappearance, when no palpable reason can be assigned for either, its selection of various countries in different degrees of latitude for its diffusion, would all appear to prove that the atmosphere must necessarily be in a certain state, to encourage its development. Dr. Good well observes, that "an epidemy, or state of the atmosphere, capable of producing any general disorder, whether originating specially, or in the ordinary course of nature, may depend upon an intemperament, or inharmonious combination of the elementary principles of which it consists, or upon some foreign principle, accidentally combined with it, and which has, of late years, more especially, been called a miasm, or contamination." And thus it appears that Influenza owes its origin to a certain *miasm*, generated perhaps from a thousand different sources, and capable of producing the specific effects recognised in this affection. In the years 1722—33, it appeared all over Europe, and part of America, and again in Great Britain in 1785, and 1803 ; it has also raged at other periods from the 16th to the 19th centuries, with great violence, over the continent of Europe.

Symptoms. The first are of the description noticed in the common Catarrh, and differing only in the extreme rapidity of attack ; great languor, lowness, and oppression at the præcordia succeed, and anxiety, sickness, and violent headache ensue ; the pulse is particularly quick and irregular, and at night there is often delirium ; the heat of the skin is not so great as in the first variety, while the tongue is moist, but of a white or yellowish hue ; there are frequently acute pains in the muscles, and in some cases of the worst description, efflorescences of an erysipelatous nature have appeared upon the skin, and terminated in gangrene ; this set of symptoms prevails from 24 to 48 hours after the first attack, gradually declining, (when the disorder terminates favourably, which is usually the case,) notwithstanding the derangement they occasion. Influenza generally attacks the robust, sparing children and aged people, and always extends most rapidly in prisons, barracks, hospitals, or wherever, in fact, the effluvia from a number of individuals, loaded with miasm, assists the already vitiated state of the atmosphere. There can be but little doubt that this affection is contagious, although it has been endeavoured to prove that it is simply epidemic ; children, we know, are not very susceptible of this disease, and while all the adults of a family are suffering from it, it is not uncommon to witness the escape of the younger branches ; but if it once find entrance into a school, or any situation where a number of children assemble, it spreads as quickly among them as in any other quarter whatsoever.

Treatment. Whenever pleuritic pains accompany the symptoms we have described, the use of the lancet is imperatively demanded; but when they do not exist, it is better to refrain from venesection, on account of the extreme debility prevailing, both during the continuance and at the termination of the disease; the treatment of the illustrious Sydenham is still the best that can be pursued; it consists of diluent drinks, with the recommendation of perfect quiet, the administration of an emetic, if the chest be much loaded and oppressed, and in giving small (three or four grains) nauseating doses of Ipecacuanha, with or without the oxymel of squills, by which expectoration is increased, and the oppression relieved. A cautious addition of opium may be made to the ipecacuanha, if a troublesome cough continue, of course abstaining from it if the head be much affected. The consequent debility may be relieved by the use of quinine, gentle exercise, nourishing diet, which indeed should be afforded during the disease unless strongly contra-indicated, and change of air; and if the cough still remain, the extracts of Hemlock and Hyoscyamus, in doses of from three to five grains at bedtime, will have the best effect in allaying it, and soothing the system to repose.

CATARACT, (from *καταρσσω*, to confound, because the sight is confounded, if not destroyed.) See *Eye*.

CATECHU ACACIA—*Catechu*. Class, polygamia; order, monœcia. A plant of the East Indies, from which the well known astringent medicine, the extract of catechu, is prepared. Dose, grs. x. to ℥ j. (of the extract,) in diarrhœa, and intestinal hæmorrhages; in coughs and hoarseness from relaxation of the uvula; locally in apthæ and ulceration of the gums. Tincture of catechu, (tinctura catechu,) ℥ j. to ℥ ij. same operation as the above.

CATHARTICS, (from *καθαίρω*, to purge.)

That class of medicines, promoting an increase of the alvine evacuations; they are thus arranged:

I. *Stimulating*, as jalap, aloes, colocynth, croton oil, &c. which exert an influence upon the fibres of the intestinal canal, to the speedy evacuation of its contents.

II. *Refrigerating*, as the sulphates of soda and potass, the super-tartrate of potass, and the whole class of saline purgatives, directing their stimulus to the exhalent vessels, and producing serous evacuations.

III. *Astringent*, as rhubarb, damask roses, &c. which replace the purgative by the astringent effect, after the operations of the first have ceased.

IV. *Emollient*, as manna, malva, castor oil, olive oil, almond oil, honey, &c. acting more as relaxing and gentle laxative remedies.

V. *Narcotic*, as tobacco, hyoscyamus, digitalis, &c. by inducing a still greater relaxation of the intestinal canal, and acting as sedatives.

There is yet another class of cathartics, in the mercurial purgatives, which act upon other organs, through the medium of the stomach, and possess the peculiar power of exciting the functions of the liver, and of thereby occasioning an influx of bile into the intestines.

Cathartics are moreover thus classed: *Laxative*, when their operation is very slight; *Purgative*, when they have a stronger action; and *Drastic*, when their force is exerted to the utmost.

CAUSTIC—*Causticum*, (from *kato*, to burn.)

Such substances, as destroy the living fibre by burning, or chemically decomposing them; they may be arranged under two orders: I. eroding caustics, as blue vitriol, (sulphas cupri,) burnt alum, (alumen ustum,) &c.; and II. destructive caustics, as potass, (lapis infernalis vel kali purum,) the nitrate of silver, (argenti nitras,) the mineral acids, &c. These substances were formerly described as *potential caustics*, while the *actual cautery* was the term given to the use of the red hot iron, now seldom employed, though not entirely discontinued.

CAYENNE. See *Pepper*.

CEPHALALGIA, (from *κεφαλη*, the head, and *αλγος*, pain,) headache. Symtomatic of many diseases, but rarely an original affection.

CHALK—*Carbonate of Lime*. See *Lime*.

CHALYBEATE, (from *chalybs*, iron,) a term given to any medicine into which iron enters. See *Iron*.

CHAMOMILE—*Anthemis*. A plant of the class syngenesia, and order, polygamia superflua. Chamomile flowers are tonic and stomachic in operation; externally, emollient. Infusion of chamomile, (infusum anthemidis,) $\frac{\text{ʒ}}{i}$ to $\frac{\text{ʒ}}{ij}$. tonic; and when taken warm, and in large draughts, emetic. Extract of chamomile, (extractum anthemidis,) grs. x. to grs. xx. stomachic.

CHANCRE. See *Venercal Disease*.

CHARCOAL—*Carbo Ligni*. Antiseptic and alterative; in doses of grs. x. to $\frac{\text{ʒ}}{j}$. in the eruptions of dyspepsia; also used in the preparation of a cataplasm with linseed meal, to fœtid ulcers.

Charcoal should always be employed in a recent state; it is perhaps the best tooth powder that can be used.

CHEMOSIS. See *Eye*.

CHICKEN POX—*Varicella*. See *Fever, eruptive*.

CHIGRE, a small sand flea, very troublesome in the West Indies, insinuating itself into the fingers and toes, particularly under the nails, and causing much heat and itching: it soon deposits in a cyst, innumerable ova, which become fresh animals of the same species, and soon occasion a troublesome ulcer. The remedy is, to extract the sac, without rupturing it, an operation in which the negro women are very expert.

CHILBLAIN—*Pernio*. A small inflammatory swelling, chiefly oc-

curring during the winter season, upon the fingers, toes, heels, and other extreme parts of the body, and caused by exposure to the cold, or by sudden changes of temperature; the prevalent custom of children warming their feet at the fire, when very cold, is the frequent origin of this affection: individuals of a scrofulous habit, are also especially liable to it. The chilblain first assumes a red appearance, which soon changes to a deep purple or leaden hue; the pain is not constant, and generally most troublesome towards night, accompanied by a sense of heat and an intolerable itching; in some persons the skin remains entire, and the above symptoms are not increased, whilst, in others, the skin breaks, and a small ulcer, of a singularly obstinate character, appears; in old people, the parts are apt to slough and become gangrenous, occasionally proving fatal.

Treatment.—In the early stage, the treatment is very simple; little more is necessary than to revive the action in the parts, and stimulate the languid circulation; snow, and iced water, with a moderate degree of friction, the application of turpentine, either by itself or mixed with the balsam capivi, and additional warmth, will answer these purposes; when the chilblains are broken, the best application, probably, is an ointment thus prepared: Gum elemi, $\frac{3}{4}$ j.; spirits of turpentine, $\frac{3}{4}$ ss.; prepared lard, $\frac{3}{4}$ ij.; olive oil, $\frac{3}{4}$ j. mix, and apply it frequently to the part.

Warm vinegar, weak solutions of nitric acid, and the sub-acetate of lead, the ointment of the nitric oxyde of mercury, have had their advocates; but the above preparation, with the use of an emollient poultice, when required, will in general effect a ready cure.

When chilblains put on a gangrenous appearance, they must be treated accordingly. See *Mortification*.

CHINCOUGH. See *Pertussis*.

CHOLERA, (from *χολη*, and *ρεω*, literally a flow of bile, or bile flux.) This disease has been described by some writers, merely as a species of diarrhœa, but when we consider that it is not always accompanied with a diarrhœa, and that it also evinces a strong tendency to spasmodic action, the propriety of a separate arrangement is apparent.

The Bilious Cholera, so common in most countries, at the close of the summer months, is both *sporadic* and *epidemic*; the first species is usually the mildest, and occasioned by suppressed perspiration, cold drinks, when the body is much heated, indigestible food, particularly unripe fruits, melons, cucumbers, &c. an excess of drastic purgatives, as well as sudden fright, or any violent emotion, that can produce an exhaustion of the sensorial power; to these, must be added a superabundancy of acrid bile, which irritates the intestinal canal, and disturbs the whole animal economy. The second species is also occasioned by an excessive secretion of bile, but its general cause may be attributed to the decom-

position of animal and vegetable substances, which predisposes the body to the action of the disease, or perhaps directly induces it by a particular combination of the decomposing elements, so as to produce a choleric miasm, as under another combination, a febrile miasm might be generated.

Symptoms.—These differ but in degree, whether the disease is sporadic or epidemic; violent vomiting and purging of thin and watery fluids with intense pain at stool; cardialgia, thirst, and great agony in the bowels, heat of the surface; anxiety of mind, nausea, and colliquative sweat; a small, quick, and unequal pulse, spasms of the limbs and coldness of the extremities, all prevail, and unless the disease be promptly arrested, death ensues, and sometimes in twenty-four hours after attack.

Treatment.—As the general disorder may be, in most cases, referred to a superabundance of bile in the intestines, our first efforts must be directed to its dilution and free discharge, by the administration of mild demulcent fluids, both to the stomach and in the form of injections; tepid water, toast and water, which, from its slight astringency, may be preferred, the infusion of spear-mint, chicken broth, linseed tea, or barley-water, with a little gum acacia dissolved in it, will ensure the desired effect; when the alimentary canal has been well cleared, opium, or its tincture, (laudanum,) in repeated doses must be given, to abate the spasmodic action, and antimonials may be advantageously combined, on account of their relaxant power; the use of opiates must be persisted in as long as any vomiting continues, and where the debility is very great, warm negus, or diluted cordials, may be occasionally employed; the warm bath has also been recommended, when the surface remains cold, and hot bottles afterwards applied to the feet. Blood-letting is inadmissible, as the depression is alarming from the first. When the disease has subsided, great care is necessary in the treatment of the patient, who must be supported by a light but nourishing diet, and a proper allowance of wine; the aromatic tonics will also be serviceable in restoring that strength, which has been so greatly impaired.

Cholera Morbus.—This dreadful disease, so emphatically termed “the scourge of the East,” is the *true spasmodic and epidemic Cholera*; whether it existed in former times, is still a matter of doubt, as the descriptions of Celsus, and Bontius, have been supposed to apply to another disease; it was not noticed by European writers, before the middle of the last century, although a tradition is current among the Hindoos, of its prevalence at a very remote period. We must look to India for the most formidable examples of this disease; there it rages like a pestilence, travelling over the most extensive districts, and sparing few indeed in its progress, and so far from any diminution in its viru-

lence being observed at the present period, the attacks of late years, have exceeded the former ones in violence. It is most difficult to account for the origin of this disease; it prevails at all seasons of the year, and its course has been occasionally extended to the northern countries of Europe, of which, its existence in Russia, at this time, is a striking example; it has appeared when the thermometer has stood at 40° Fahrenheit, and also when the mercury has reached 90° or 100° ; hence it is impossible to regard it as solely dependent upon the condition of the atmosphere; it has visited the most salubrious spots, leaving less healthy situations untouched; can it therefore be presumed to be the consequence of miasm? The idea that cholera morbus is dependent upon a specific contagion, is prevalent amongst a number of authors who have written upon the subject, and certainly the facts they advance, are sufficiently powerful to justify the conclusion; in several instances, the medical officer has been alone attacked, after an attendance upon the sick, the immediate neighbourhood remaining unaffected; the circumstance of the disease breaking out, in several previously unaffected districts, at a time corresponding with the arrival and sickening of persons, who had intercourse with the sick in an affected district, bears likewise very strongly on the subject; the suddenness of its appearance and disappearance, does not, it is true, agree with the laws of contagion, still, where we are at a loss to account for its presence, from atmospherical changes including great variations in temperature, from errors in diet, which is certainly not the case, as in the bilious cholera, this disease attacking the temperate as well as the debauched, or from any other circumstances connected with localities, we must necessarily admit the cause of specific contagion, as the most reasonable one, that has hitherto been advanced.

Symptoms.—A reference to the symptoms described in Bilious Cholera, will be sufficient, as the only variation experienced in this disease, is in their increased severity, and a greater excess of spasm.

Treatment. However the symptoms of the Bilious Cholera resemble those of this disease, the treatment is conducted upon somewhat different principles; the necessity of this will be readily admitted, when it is stated that in nearly every case, there is a total absence of the bile, from the whole range of the alimentary canal, and in those few cases where an overflow of bile has occurred, the symptoms are greatly mitigated, and the disease more manageable and more resembling the Bilious Cholera. In this Cholera the biliary ducts are spasmodically closed, and from this point the spasmodic action appears to spread in every direction, affecting every organ, and giving rise to that terrible and agonizing train of symptoms, that so speedily terminate the existence of the sufferer. With the exception of the plague, there is no disease so

strikingly marked by the violence of its action, and the rapid exhaustion of living power, the patient frequently expiring within ten or twelve hours after attack; it is therefore of the utmost importance to adopt a plan of treatment without the slightest delay; in the East Indies, bleeding is generally practised immediately after seizure, with the intent to moderate the violent spasms that set in; calomel in scruple doses, combined with two grains of opium, are repeated every two or three hours, until the symptoms are relieved; to these are added a liberal use of the diffusible stimuli, such as nitric ether, ammonia, camphor, hot arrack and water, &c., the hot bath, stimulant embrocations, and sometimes antimonials, in conjunction with the calomel. It would perhaps appear that the use of the lancet could hardly be justified in cases where such extreme weakness ensues, but the fact of hardly any case occurring without an alarming congestion in one or more of the larger organs, imperatively demands its employment.

The Cholera, so commonly fatal to children in the southern cities of the United States, must be regarded more as a variety of the Bilious, than the Spasmodic Cholera.

On this subject, the reader may consult Rush's "Inquiries and Observations"—Mr. Stuart's paper in Cox's Philadelphia Medical Museum—Scott's "Report of the Epidemic Cholera at Madras in 1824"—Orton's Essay upon the same subject—The Edinburgh Medical and Surgical Journal for June, 1823—The 12th volume of the Medico-Chir. Transactions—and Rees' Cyclopædia, article "Cholera."

CHOREA SANCTI VITI (Chorea from *χορος*, a chorus, the usual accompaniment to dancing in former days.) St. Vitus' dance. "This disease is occasioned by an irritability of the nervous system, chiefly dependent upon debility, and particularly a debility of the stomach, and its collatitious organs. Most of the diseases of children are seated in this quarter; and it is from thence that chorea generally takes its rise, and shows itself in an early period of life; the ordinary occasional causes being bad nursing, innutritious diet, accumulated feces, worms, or some other intestinal irritant. About the age of puberty, there is another kind of general irritation, that pervades the system; and when this change does not take place kindly, which is frequently the case in weakly habits, the irritation assumes a morbid character, and is exacerbated by a congestive state of the vessels that constitute its more immediate seat; and chorea takes its effect from this cause. In fact, where the predisponent cause of an irritable state of the nervous system is very active and predominant, a local or temporary excitement of any organ, and almost at any period of life, will give rise to the convulsive movements of chorea; and hence we find it so often united with an hysteric diathesis. It has been produced by a fright, by a wound penetrating the brain

through the orbit, by an improper use of lead or mercury, and by suppressed cutaneous eruptions." This comprehensive detail of the causes leading to chorea, is from the pen of Dr. Mason Good, to whom we have been frequently indebted in the compilation of this work: the Doctor, however, does not state the grounds of his belief, that chorea is principally dependent upon a derangement or debility of the stomach, or why the accidents he describes produce the disease; that in some individuals the disease does frequently occur, in consequence, is evident, but we are still without information as to the positive influence exercised in its production.

Symptoms. The fits are sometimes preceded by a coldness of the feet and hands, or a tingling sensation that ascends like cold air, up the spine, and a flatulent pain in the left hypochondrium, with obstinate costiveness; at other times the attack commences with yawning, anxiety, palpitations, difficulty of swallowing, giddiness, &c. A variable, and occasionally a ravenous appetite, and obstinate constipation, are the immediate precursors of the fit, in most cases. The convulsive motions vary; the muscles of the extremities, face, lower jaw, head and trunk of the body, are affected at different times, and in a different manner; the walk is usually of a jumping kind, the arms are thrown violently from the side, the eyes open and shut with a convulsive quickness, and the mouth is drawn up by a sudden impulse, which as suddenly subsides. When the attacks have been frequent, the system becomes unable to resist the tendency to irregular motion, and those peculiarities, so distressing to the sufferer, though frequently so ludicrous to the by-stander, which have before only been occasional or periodic, become habitual; as the disease increases, the eyes lose their brilliancy, the appetite becomes impaired, the strength weakened, loss of speech and emaciation succeed, and too often it terminates in epilepsy or mania.

Treatment. Purgatives are the most valuable class of medicines in the treatment of this disease, and of these the spirits of turpentine is perhaps one of the best, whether it is intended to act as an anthelmintic, when worms in the intestinal canal are the cause, or as a direct purgative in clearing the bowels, and also as an antispasmodic; the sub-muriate of mercury, jalap, and other cathartics, may also be advantageously employed. When the viscera have been unloaded, a due attention to the immediate origin of the disease is required; if in the case of young children it proceeds from dentition, the gums should be freely lanced; when a general debility prevails, it is necessary to strengthen the system by a judicious administration of wine, and the milder tonics, avoiding such as are very astringent in their operation; a change of air, cold bathing, and a well regulated, although nourishing diet, must also claim our attention as auxiliaries; musk, opium, and camphor, may be

exhibited when the convulsions are violent, or not prompt in yielding, whilst in those whose minds have suffered under a corresponding debility with their frames, the stimulus of electricity may be properly resorted to.

It is occasionally discovered, that chorea has been caused from the effects of sympathy or imitation, when a healthy child has unwittingly copied the actions of a sufferer under this disease, until mocking has become a habit; great care and salutary correction, will probably prove the best antidotes in such an instance.

CHLOROSIS, (from *χλωρος*, green or pale, so called from the hue of the countenances in persons affected by it.) See *Uterus—affections of*.

CHORDEE, (Chordé, French.) A spasmodic constriction of the Penis in gonorrhœa. See *Venereal Disease*.

CHYLOPOETIC ORGANS. See *Viscera*.

CICATRIZATION. See *Inflammation*.

CINNABAR—*The red sulphuret of mercury—Hydrargyri sulphuretum rubrum*; occurs in a native state, but is generally prepared for the purposes of medicine, by the mixture of forty parts of purified mercury, with eight of sulphur. Employed in fumigation of venereal ulcers on the anus and pudendum, and also in ulcerated sore throat from the same affection.

CINCHONÆ CORTEX—*Cinchona*, or *Peruvian Bark*. Yielded from a plant of the class pentandria, and order, monogynia. The varieties of this bark are pharmaceutically employed.

I. *Yellow Cinchona Bark—Cinchonæ Cordifoliæ Cortex*; yielding the active alkaline principle termed quinia.

II. *Pale Cinchona Bark—Cinchonæ Lancifoliæ Cortex*; yielding the active alkaline principle called cinchonia.

III. *Red Cinchona Bark—Cinchonæ Oblongifoliæ Cortex*; containing both quinia and cinchonia.

These three species, used under the general term cinchona, are powerfully and permanently tonic, astringent, stomachic, and antiseptic; in doses of from grs. x. to $\overline{3}$ ss.

Official preparations.—Decoction of bark, (decoctum cinchonæ,) $\overline{3}$ i. to $\overline{3}$ iv. three times a day; infusion of bark, (infusum cinchonæ,) $\overline{3}$ i. to $\overline{3}$ iij.; infusion of bark with lime water, or with lemon juice, (infusum cinchonæ cum calcis liquore, vel cum succo limonum;) extract of bark, (extractum cinchonæ,) grs. x. to $\overline{3}$ ss; tincture of bark, (tinctura cinchonæ,) $\overline{5}$ j. to $\overline{3}$ iv.; compound tincture of bark, (tinctura cinchonæ composita,) $\overline{3}$ i. to $\overline{3}$ iij. These preparations are administered in those cases that require the bark, and occasionally with greater advantage, as being less nauseous; the infusion with lime water, is an excellent remedy in cardialgia and dyspepsia, generally; and the infusion with lemon juice, peculiarly grateful in those instances of typhus requiring the medicine.

Cinchona is *incompatible* with tartarized antimony, the sulphates of iron and zinc, nitrate of silver, and the muriate of mercury; also, with decoction of galls, carbonates of alkalies, and nearly all the other vegetable bitters.

CINNAMON—*Cinnamomi Cortex*. The inner bark of the *laurus cinnamomum*; class, enneandria; order, monogynia; one of the most grateful aromatics, stimulant, carminative, and tonic in operation. Dose, grs. x. to ℥ j.

Official preparations.—Cinnamon water, (aqua cinnamomi,) ℥ i. to ℥ ij.; spirits of cinnamon, (spiritus cinnamomi,) ℥ i. to ℥ iv; tincture of cinnamon, (tinctura cinnamomi,) compound tincture, (tinctura cinnamomi composita,) of either, ℥ i. to ℥ iij.; compound powder of cinnamon, (pulvis cinnamomi compositus,) grs. x. to ℥ i.; all of the same operation as the bark.

CIRCOCELE, (from *κίρσος*, varix, or dilatation of a vein, and *κκλη*, a tumour,) a *varicose distention of the spermatic veins*. See *Testicle*, *Diseases of*.

CIRCUMCISION, (from *circumcido*, to cut round.) The cutting off a portion of the prepuce; an ancient rite of Jewish worship; the operation is sometimes necessary in cases of natural or venereal phimosis; for the mode of performing it, see *Venereal Disease*.

CLOVES—*Caryophylli*. The unexpanded buds of the *eugenia caryophyllata*; class, polyandria; order, monogynia; a tree of the East Indian Archipelago; stimulant in operation, but seldom employed, except as an adjunct to other medicines.

COCHINEAL—*Coccus Cacti*. The systematic name of the cochineal insect; the female insect is alone employed, either in medicine or the arts, and is principally procured in South America, from the opuntia, or Indian fig tree, to which they resort in great quantities. Its qualities are slightly stimulant and astringent; in the English pharmacopeias, it enters into the composition of the compound tinctures of cardamom and cinchona, but probably rather on account of the beautiful colour conveyed, than for any intrinsic properties.

COLCHICUM—*Bulb of the Meadow Saffron*; *Colchici Radix*. The root of the colchicum autumnale, of the class hexandria, and order trigynia; narcotic, diuretic, cathartic, in doses of from gr. i. to grs. iv.; employed in dropsics, gout, and rheumatism. The seeds, (semina colchici,) are also used for the same purpose.

Official preparations.—Vinegar of colchicum, (acetum colchici, which see,) wine of colchicum, (vinum colchici,) ℥ xxx. to ℥ j. in any bland fluid; syrup of colchicum, (syrupus colchici,) ℥ j. to ℥ ss.

It is supposed that colchicum forms the active ingredient in the celebrated "*Eau Medicinale*."

COLD, EFFECTS OF. See *Asphyxia*.

COLIC—*Colica*, (from *κωλον*, the colon.) This disease, which has been described under so many varieties, is exceedingly common in nearly every country; for all useful purposes in practice, we need not admit more than four species: 1st. *Common or accidental colic*, caused by aliments of an acrid nature, or poisonous food, such as muscles, mushrooms, &c. which irritate the bowels without producing diarrhœa. 2d. *Bilious colic*, closely allied to cholera, occurring in the autumnal months. 3d. *The painters' colic*, (*colica pictorum*,) arising from the poisonous qualities of lead. 4th. *Illcus, or the Iliac passion*, from disorganization of the viscera, or from some impediment to the proper exercise of their functions.

The *common colic* is attended with symptoms of indigestion, and has been sometimes denominated the *flatulent colic*, from the distressing fullness and frequent eructations of wind which accompany it; the pain in the bowels is acute, but seldom permanent, and in nearly every case is relieved by a moderate degree of pressure; the pain is of a peculiar griping, or, as it has been termed, wringing nature, with spasmodic constrictions of the abdominal muscles, and costiveness. These symptoms, joined to the absence of fever, are sufficient to distinguish it from the only disease with which it is likely to be confounded—enteritis, or inflammation of the intestines.

Treatment.—In most cases, the spasms will yield upon the administration of a carminative draught, or a small quantity of brandy; a mixture formed of grs. x. of powder of rhubarb, grs. xv. of magnesia, and twenty drops of the tincture of opium, in ℥ i. of cinnamon water, will succeed still better, and restore the intestinal canal to its regular action. The aromatic spices, particularly nutmeg, are also available. An emollient clyster will sometimes afford immediate relief, after a plentiful evacuation has been obtained; it may not however be practicable in all cases to administer it, from the spasmodic contraction prevailing and extending through the whole range of viscera; when much difficulty is experienced in the introduction of the common sized pipe into the rectum, a small gum-elastic bougie, having the end carefully cut and rounded off, may be fitted to the end of the injection apparatus, and be more easily introduced, and passed much higher up the gut than the common pipe. This species of colic is sometimes observed in women of an hysterical habit, and some practitioners have therefore given it the name of *hysterical colic*. Where such a disposition prevails, antispasmodics are of course indicated, as well as the remedies just directed. There is one caution in mind. that the causes of colic prove also, in some cases, those of ab-

dominal inflammation; whenever therefore any symptoms arise which may be supposed to depend upon the latter circumstance, the lancet must immediately be employed, in conjunction with the treatment laid down under the article *Inflammation of the Intestines*.

The *bilious colic* is a common autumnal epidemic, and prevails after a long continuance of a hot and moist state of the atmosphere; it sometimes occurs with diarrhœa, cholera, or jaundice, and is dependent upon an increased and vitiated secretion of bile. Headache, loathing of food, a bitter taste in the mouth, and bilious vomitings, are the first symptoms, which are quickly followed by severe and griping pains in the bowels, accompanied by great distention; pains in the loins, and obstinate costiveness, and when, as in some cases, this last symptom does not prevail, the motions are scanty and slimy, with violent tenesmus. Considerable fever exists in this variety of cholera; the tongue is loaded with a yellowish fur, and thirst, restlessness, and great languor prevail. The pulse is not much accelerated, nor the heat of the skin greatly increased.

Treatment.—The first object is to relieve the bowels from the load which oppresses them, still bearing in mind the irritable state of the whole alimentary canal, which forbids the administration of all medicines calculated to increase it. Opium may hardly be recommended in the first instance; for although it may afford relief to the existing symptoms, its use is too apt to be followed by an increase of fever. We may commence the treatment, by giving ten or fifteen grains of ipecacuanha, which may be followed by a dose of calomel and rhubarb, castor oil, or the common senna draught; where the stomach is very irritable, a saline purgative, in a state of effervescence, will remain when other medicines are rejected. Directly a free discharge has been obtained from the bowels, and of the proper colour and consistence, a full dose of laudanum may be given with the greatest advantage; it then allays the irritation, and soothes the patient after the agitation and sufferings he has experienced. For some days after the disease has yielded, it will be necessary to exhibit occasionally some mild aperient, in order to prevent any accumulation of fæces, and to restore the bowels to their wonted office. During the convalescence, which is frequently tedious, light tonics may be given; such as equal parts of camphor mixture, and the decoction of bark, &c.

The *painters' colic*, (*colica pictorum*), also called the *colic of Poitou*, the *Devonshire colic*, and *colica rhachialgia*, (*ραχιαλγία*, literally back-bone or spino ache.) The remote cause of this affection seems, nearly in every instance, to be lead introduced into the system, either through the stomach, the lungs, or the skin; hence, painters, who are continually exposed to the action of the metal, potters, glaziers, gilders, and miners, are particularly affected, as the materials employed in their occupations

contain a large quantity of lead. From the same cause, the peasantry of Poitou, in France, and of Devonshire, in England, are subject to the disease, as lead was and may still be frequently used, to destroy the acidity of the weak wine and cider of those countries. In addition to this, a custom still prevails of employing leaden vats for the reception of the fluid after the fruit has been crushed, and this alone would render the beverage deleterious, from the action of the acid upon the metal. In the West Indies, this disease has also occurred; and Dr. Hunter detected, after careful investigation, the presence of lead in many samples of new rum, a liquor so frequently drank by the soldiers of the garrisons. The lead appears, however, to be deposited after a certain time, when the rum loses its noxious quality, and this is undoubtedly from its being put into oak casks, or casks made of wood, containing a principle similar to that of galls; a gallate of lead is thus formed in the place of a carbonate, which is insoluble, inert, and deposited at the bottom of the cask. In those individuals who are necessarily subject to the fumes, or constant handling of lead, a want of cleanliness, which is too common, renders them doubly susceptible. The pain in this disease is frequently of an agonizing nature, and is seated at the pit of the stomach: Dr. Monro describes it as an acute twisting pain about the navel, not increased by pressure, and accompanied by a dragging inwards of the abdominal parietes, which have a hard feel, with tenesmus and costiveness. The suffering is first of a dull kind, and more a sense of great uneasiness than positive pain; it however gradually increases in severity, and in the worst cases, shoots from the stomach to the arms, back, loins, rectum, and bladder, and sometimes to the thighs and legs, until the whole external muscles appear in a state of spasm, and are rendered so tender, that the weight of the bed-clothes can with difficulty be endured. Sickness, as well as vomiting, is a very constant symptom, and the discharge from the stomach of an acrid and slimy nature; this usually relieves the patient for the time, and encourages a false hope of his recovery, but which is speedily destroyed. Bitter eructations and violent hiccoughs, occur between the intermissions of sickness. This disease appears to possess no tendency to inflammation, and the pulse is but little affected, while in some instances the sphincters of the bladder and anus are so contracted that the urine and feces are voided with the utmost difficulty, and a catheter or clyster-pipe can hardly be passed. If our efforts be successful in the removal of this colic, relieving sweats break out, sometimes accompanied with an efflorescence, a disposition to relieve the bowels is felt, and after large discharges of scybala, occasionally mixed with blood, the patient is restored to health. When our intentions are defeated, the urgency of the internal symptoms will sometimes abate, to give rise to a very characteristic mark of this disease, and especially observable in painters,

who have been repeatedly attacked; the fingers, or the whole of the right hand and fore arm, become paralyzed, so that the fingers are contracted, and the hand, when the arm is extended horizontally, hangs at a right angle to the arm, the extensor muscles being always more paralyzed than the flexors; this is what is commonly termed among painters "the wrist drop." The palsied limb shrinks, and the muscles not only lose their natural size, but become converted into a kind of suetty substance; in addition to this evil, a neglected or ill treated case will not only thus terminate, but deafness, blindness, delirium, and epileptic fits succeed, and rapidly terminate a miserable life.

Treatment.—A slight case of this disease will usually be remedied by the use of active purgatives, but wherever its character appears formidable, opium must be resorted to without delay; considerable discussion has arisen among medical men as to the propriety of commencing with purgatives or opiates, but after a careful review of their opinions, it would appear that a combination of both, in any stage of the disease, promises the fairest chance of cure. When the stomach is not too irritable, liquid medicines should be preferred, as exerting a quicker action; a draught containing ten or twelve drops of laudanum, in half an ounce of castor oil, with a little mucilage, may be repeated every six hours, or when the oil is objected to, the senna mixture may be used instead; if liquids cannot be retained on the stomach, the pills of colocynth, calomel, and opium may be substituted; fomentations to the abdomen, the warm bath, and stimulating injections are also of the most essential service.

The *preparations of Mercury and Silver* (the *submuriate of the one*, and the *nitrate of the other*) have also been much extolled; we are aware that in all cases of spasmodic disease, the system is easily affected by mercury, and this fact would teach us caution in its employment; still, some practitioners exhibit calomel oven to salivation, and, according to their reports, with decided success; in many instances, indeed, a large dose of this salt (eight or ten grains) has produced a remarkable and sudden change, acting at once upon the bowels, and occasioning a very large discharge, to the infinite relief of the patient.

The *Nitrate of Silver* (lunar caustic) is useful as a laxative, as well as an antispasmodic, and was the medicine employed successfully by Dr. Robert's (see *Medico Chir. Transactions*, vol. 5th) in two very severe cases of the disease; he gave from three to five grains, three times a day, and in one of the cases, five grains every six hours, and not only relieved the patients, but absolutely remedied the paralysis of the wrist. The essential oil of turpentine, and croton oil, have also been administered as purgatives.

Iliac colic.—This is the most distressing variety of the disease, but happily it is very rare; the peculiar symptom accompanying it, and by

which it is distinguished from the other, is the vomiting of stercoraceous matter, that is of a slimy substance, intermixed with feces; it may be occasioned by repeated attacks of the common colic, by which the intestines have been so frequently affected with spasm, as to lose their proper peristaltic action; an involution or intorsusception of the intestines, where one portion, constricted and lessened in its diameter, has fallen into another below it, is frequently the immediate cause of the most distressing symptom, that of discharging the contents of the larger intestines by the mouth, when the constriction is seated very low down, and in some instances, not only has intorsusception existed, but portions of the intestinal canal have become twisted into knots, from the strength of spasmodic action, when strangulation and gangrene have rapidly ensued. The intestinal canal, may also be rendered impervious by mechanical obstructions, such as intestinal calculi and polypi, or a cancerous state of the stomach, or its pyloric orifice may produce analogous symptoms. It is worthy of notice, says Dr. Gregory, that occasionally after death, the intestines have been found inordinately distended, and it has hence been conjectured, that their muscular fibres may, by the over-distention either of feces or flatus, become paralysed. The last cause of ileus to be mentioned, is chronic inflammation and general thickening of the peritoneal coats of the intestines, by which their regular action is disturbed, and a contrary one established.

Treatment.—The practice of venesection, however it may have been recommended with a view of relaxing the spasmodic constriction, should be avoided, unless unequivocal marks of inflammation appear; the warm bath, emollient clysters, with occasionally a cathartic injection, opium, hyoscyamus (henbane) and stimulants to the abdomen in the form of liniment and blister, may be employed with a more reasonable chance of success; calomel, in four grain doses, has been found an efficient purgative, either in combination with other medicines, or alone. Emetics are now nearly disused in this disease, as tending to promote the irritation we are anxious to subdue. Antispasmodics have met with a fair, and upon the whole a successful trial, either administered before, or alternately with purgatives; favourable, however, as the action of some of these medicines has proved, we are not in possession of any means that produce a decided influence upon this disease, which generally defies our skill, however it may be exerted.

It remains but to state, that worms in the intestinal canal have occasionally produced ileus, when, of course, anthelmintics must be administered, directly we are aware of the circumstance.

On the subject of colic, consult the following works:—Monro's and Baillie's "Morbid Anatomy;" Dr. Warren, in the 2d vol. of Medical Transactions; "Observations on the Poison of Lead," by Percival,

(Dublin;) Article, Colic, in Rees's *Encyclopædia*; Pemberton "on Diseases of the Abdominal Viscera;" Meckel's "*Manuel d'Anatomie*;" the observations of Hall, Alexander, and Wood, in the 4th, 6th and 7th volumes of the *Annals of Medicine*; Williamson, in the *Philad. Med. Museum*, vol. 1st, and others.

COLLIQUATIVE, (from *colliqueo*, to melt)—a term employed in medicine to an excessive evacuation, and chiefly in reference to *diaphoresis* and *diarrhœa*.

In the former case, the perspiration is symptomatic, and is generally recognized in hectic fever, phthisis, or in a constitution suffering from the effects of a wound, &c. giving rise to excessive local action; it is almost useless to interfere, except for the purpose of palliation, unless we can remedy the cause giving rise to it; the usual palliatives are the mineral acids, particularly the sulphuric, the sulphate of quinine, in small doses, and the lighter tonics, avoiding, at the same time, warm diluting drinks, and keeping the person and chamber as cool as possible.

In the latter case, or *colliquative diarrhœa*, which occurs under the same circumstances as the former, and frequently alternates with it, it is equally unwise to attempt a cure without removing the disease of which this is but a symptom; in the intention of relieving its severity, aromatics, astringents, opiates, and a rice diet, may be beneficially resorted to.

COLOCYNTH—*Colocynthis*. The bitter cucumber; class, monœcia; order, syngenesia. The pulp of this fruit is a drastic purgative, given in doses of from gr. iv. to x.

Officinal preparations. Extract of Colocynth, and compound extract of Colocynth (*extractum colocynthis*, et *extractum colocynthis compositum*) of each from grs. v. to ℥ i. as cathartics and stimulants.

COLUMBO ROOT—*Calumbæ Radix*—imported from Colomba, in Ceylon. Tonic, stomachic, antiseptic; dose grs. xv. to ʒ ss.

Officinal preparations. Infusion of the root (*infusum calumbæ*) ʒ iss. to ʒ iij. three times a day. Tincture of the same (*tinctura calumbæ*) ʒ ss. to ʒ iv. both having the same operation as the root.

COMA, (from *κειω*, to lie down.) Drowsiness, insensibility; a symptom of many affections, particularly *Apoplexy*, and *Injuries of the Head*, which see.

COMPRESSION. See *Injuries of the Head*.

CONCEPTION. See *Uterus*.

CONCUSSION. See *Injuries of the Head*.

CONDYLOMA. (Condylema, *atis*, a tubercle or knot.) A wart-like excrescence, that appears about the anus and pudendum of both sexes, which may be removed either by the application of a ligature to the base, or with the knife, of which modes the latter is the best, as well as the least painful.

CONSTIPATION—(*Opstipatio*)—*Costiveness*. It is doubtful whether this may be regarded as a disease, as in some individuals the power of relieving the bowels is not experienced more than once or twice a week, the system suffering little if any inconvenience; when costiveness is thus constitutional, it may be unwise to interfere with it, as long as it is unaccompanied by other symptoms; in general, however, it is symptomatic of other affections, when the rules for its treatment are the same as those directed under the heads of Colic, Dyspepsia, &c, of which diseases it is the general accompaniment.

Where it occurs in regular habits, it is the result of a neglect of the daily evacuation, (and is most common in individuals of a sedentary habit,) or of a carelessness or excess in diet.

The *treatment* is sufficiently simple, and merely requires a dose or two of the neutral salts, or of any mild cathartic, to relieve the bowels from their load, and more attention in future both to regular stools, and to the quantity and quality of food. Drastic purgatives must strictly be avoided, as they only increase that debility of the intestines, which is the cause of the complaint. Occasional injections of tepid water, good air, and frequent exercise, light food and fruits, are all that is essential in common cases of constipation. Aloetic purges must not be used, they irritate the rectum, and strongly tend to the production of hæmorrhoids, in persons of a costive habit.

In the constipation of pregnant women, the same mild treatment will afford the desired relief.

CONSUMPTION OF THE LUNGS. See *Lungs, diseases of*.

CONTAGION, (from *contango*, to touch.) This term implies the application of any poisonous miasm or matter to a healthy body, from a direct contact with a diseased one. For remarks on *Contagion*, see *Fevers*.

CONTRAYERVA ROOT—*Contrayervæ Radix*. The root of the *Dorstenia Contrayerva*, of the class tetrandria, and order monogynia; a plant of Peru and the West Indies. Stimulant, tonic, sudorific, in doses of grs. v. to ℥j. A compound powder of contrayerva (*pulvis contrayerva compositus*) is admitted into the *Pharmacopœia Londinensis*, and recommended in doses of grs. xv. to 3 ss, rubbed up with mucilage, in typhus, and the exanthemata, as well as in dysentery, and atonic gout.

CONTUSION, (from *contundo*, to strike or knock together.) A bruise, or contused wound. See *Wounds*.

CONVULSIONS—*Convulsiones*. An irregularity in muscular action, with violent and involuntary contractions, and always more or less diminishing the sensibility. There are several species of this affection, dependent upon idiosyncrasy, habit, or the time of life in which they make

their appearance ; in some instances convulsions attack the muscles first of one limb, then of another, and subside after visiting some particular organ ; in others, they act upon the whole system simultaneously ; and again, in a third variety, they occur at irregular periods, not marked by the same constancy as prevails in the former kinds, nor invariably displaying the same form.

Some convulsions are characterized by the loud and involuntary cries of the sufferer, the muscles of respiration, and especially those of the larynx, being chiefly affected ; the puerperal convulsions, or those seizing women during labour, also form a distinct variety, as well as the infantile convulsions, to which children of all ages, but more especially infants, are subject.

Convulsions may thus appear under apparently very different circumstances ; no period of life is exempt from their occurrence, although their cause is frequently enveloped in obscurity : the ordinary excitements may be either structural or functional derangements ; the former occasioned either by original deformity within the cranium, whereby some spicular node may press upon the brain, or by accident, when the sharp portions of a fractured bone may produce the same effects ; congestion of the brain is also a source of convulsions, and hence, sudden fright, or any long experienced emotion of the mind, in some cases act as excitements, and also the suppression of any accustomed evacuation, whether of a natural or morbid nature, such as milk, leucorrhœa, the menses, dysentery, an old ulcer, as well as the repulsion of gout, exanthemas, and cutaneous eruptions. The narcotic poisons likewise operate in the production of convulsions, and when they occur in consequence, they are usually the immediate precursors to dissolution. The attack is sometimes experienced without any previous warning, although there are usually a few indications that denote its approach, such as coldness in the extremities, dizziness, dimness of sight, a peculiar and painful sense of flatulence in the bowels, and a tenseness in the abdomen ; a tumor in the muscles of the back and shoulders, and a cold aura creeping up in those regions, and in the loins.

The struggle itself varies in extent, violence, and duration ; the muscles become alternately rigid and relaxed, the teeth gnash and frequently injure the tongue and lips, the eye-lids open to a full stare, or are kept in a state of continued motion ; the strength exerted in a paroxysm is occasionally very great, and may require the efforts of five or six individuals in its controul ; the lips, cheeks, and indeed the whole surface is of a dark or livid hue, in most instances from the prevailing oppression of the lungs. After the violence has ceased, which may be the case in a few minutes, or not for some hours, great languor and debility succeed,

with head-ache and vomiting, except where children have been attacked, and in whom no secondary symptoms appear.

Treatment.—This must be varied according to the character of the attack, and the state of the constitution permitting its invasion; if convulsions proceed from the effects of a narcotic poison or deleterious substance, the great aim, of course, will be to remove the offending cause as soon as may be, and restore the power that has been depressed; the introduction of the stomach-pump may accomplish both these objects, in abstracting any liquid that may remain, and in expeditiously administering stimulants, or such remedies as may be judged necessary. In many cases of convulsions, venesection will be advisable, from the danger of congestion in any important organ; brisk cathartics may at once be administered, by the mouth where it is possible, but where that is not the case, in the form of injection. Emetics have perhaps been as much condemned as advocated; the variety of opinion respecting their use has doubtless arisen from their too general employment formerly, by which they certainly did as much harm as good; at the present period, when they are cautiously given, and with particular reference to the condition of the patient, the most favourable results follow; as a general rule, emetics may be recommended in all cases of convulsions where no great degree of congestion occurs; in such instances the use of the lancet must supersede all other efforts, and particularly the exhibition of emetics, which would rather add to the oppression than shorten the paroxysm. The French and German physicians have been much accustomed to the use of this class of medicines in the convulsions of infancy, resorting even to the most violent in their action, the sulphate and acetate of copper, (blue vitriol and verdigris,) on account of their speedy operation. Antispasmodics are certainly entitled to great attention, as often succeeding in allaying the irregular commotion; the preparations of ammonia, ether, musk, camphor, valerian, and assafœtida, are usually employed, either alone or in combination with the warmer carminatives, as cardamoms, ginger, mint, &c.; where antispasmodics fail in overcoming the irregularity of action, narcotics must be resorted to, hyoscyamus and belladonna, as well as opium. Cold and heat have long been regarded as powerful antispasmodics in these affections; warm bathing, especially in the convulsions of infants, may generally be advised, not persisting in it for too long a period, as thereby debility would be occasioned; the cold bath is also of essential service; where, as in the higher walks of life, an excess of caution has produced the very evils it was intended to prevent, when a child is ill and weak from confinement to a hot unventilated nursery, and from the other circumstances too often attendant upon fashionable nursing, a plunge in a cold bath, or even an exposure to a free current of air, will arrest the paroxysm at once;

while, on the other hand, the children of the poor, who are subject to the daily influence of the cold, will experience the same relief from being immersed in a warm bath.

Where difficult dentition is the cause of convulsions, the child's gums should be immediately lanced ; where they are occasioned by worms, a dose of castor oil and turpentine, or other powerful anthelmintic medicines must be administered ; in short, wherever the origin of the affection can be discovered, that must first be relieved before we can hope for a cure. Where convulsions take place immediately after birth, they are probably owing to the effects of pressure upon the head when passing the pelvis ; here it is prudent to allow a small quantity of blood to escape from the cord, or two leeches may be applied to the temples.

The inward fits or convulsions, described by Dr. Armstrong, are not always confined, as supposed by some authors, to the first month, but may extend throughout the whole period of suckling ; they are thus characterized : the child appears as if asleep, the eye-lids not quite closed, while the eyes are turned up with a quick and tremulous motion ; the muscles of the face and lips are slightly agitated, frequently occasioning a smile ; the respiration is stopped for a few seconds, and regained by a quickened gasp, the nose is pinched up, while around the mouth and eyes a red, and occasionally a livid circle may be observed ; the child starts violently when disturbed, and struggles, until a discharge of wind, vomiting, or a fit of crying, appears to afford relief. The antimonial wine in small doses, has been recommended by Dr. Armstrong, who also directs that the infant should not be allowed to sleep too long at a time, and that the back and belly should be frequently rubbed, in order to favour the expulsion of wind ; laxatives and carminatives may also be given, and when the fits are frequent and severe, the use of mild anodynes adopted ; dependent as these fits chiefly are upon the presence of wind in the stomach, which produces that irregular and convulsive action, we can be at no loss respecting the treatment, which will occasion its ready expulsion.

Good air, light and wholesome diet, mild tonics when necessary, and a due attention to the state of the bowels, in all cases of infantile convulsions, will prove the best assistants in warding off future attacks. In the treatment of adults, much more care is necessary ; in addition to venesection, the use of cathartics, emetics, or antispasmodics, it will be necessary to oppose a further vigorous resistance to convulsive action ; in the intervals between the paroxysms, every effort must be strained to prevent their recurrence ; the preparations of zinc have been highly extolled by many physicians, and of these preparations, the white oxide, in doses of from one to three grains every six hours, has been preferred ; the extract of henbane (*hyoscyamus*) may be added to the oxide with

advantage ; the sulphate, in lieu of the oxide of zinc, and in doses of a grain three times a day, in the emulsion of bitter almonds, has been also recommended ; the use of camphor in all spasmodic and convulsive affections, has been recognized from the time of Cullen to the present day, either singly, with the preparations of zinc, or the nitrate of silver, commencing with doses of one grain of the latter four or five times a day, and gradually increasing to three or four. Vegetable tonics, notwithstanding the recommendations they have received, are little to be depended upon ; in order to relieve the patient from an attack which may otherwise prove periodical, and end in confirmed epilepsy or mania, we must adopt the more decided treatment already recommended.

Puerperal Convulsions. See *Uterus*.

COPAIBA—*Copaiba*—*Capivi*. The balsam is obtained from the plant termed *Copaifera Officinalis*, growing in Brazil ; class, decandria ; order, monogynia. Stimulant, diuretic, laxative, acting powerfully on the urinary passages ; dose ℥. x. to xl. in emulsion, or on sugar. Incompatible with sulphuric and nitric acids.

COPPER—*Cuprum*. See *Metals*.

CORIANDER—*Coriandrum*. The name of a genus of plants of the class pentandria, and order digynia, the seeds of which are employed as a carminative.

CORNEA, diseases of. See *Eye*.

CORN—*Clavus*. A hardened portion of cuticle, generally appearing on the feet or toes, caused by the pressure of tight shoes, and when extending deep into, and attached to the cellular membrane, exquisitely painful and troublesome. The removal of corns is attended with little difficulty, provided the sufferer will submit to a short confinement, when after scraping off the outward surface, taking care not to wound the flesh in so doing, an emollient poultice, or some soft ointment, with the application of a little soap-plaster, will be sufficient, soaking the feet morning and evening for a few days : the following plaster has been recommended : R. Gum Ammoniacy ; Cerae flavæ, aa. $\frac{3}{4}$ ij. ; Cupri subacetatis, $\frac{5}{8}$ vj. The gum and the wax to be melted together, when the verdigris may be added, and the whole stirred till cold. A mechanical mode of curing corns may be also described. Eight or twelve pieces of linen, smeared with any soft ointment, and an aperture cut in the middle of each, exactly adapted to the size of the corn, are to be laid over each other, and so applied that the corn is to lie in the opening, in such a manner that it cannot be pressed upon by the shoe ; and should it be in the sole of the foot, it is only necessary to put into the shoe a false sole of leather or cork, in which a hole is cut, corresponding to the shape and situation of the induration.

COUCHING. The operation of depressing a cataract out of the axis of sight, or the displacement or breaking of the substance of the lens with

a needle, so as to accomplish the dispersion, and subsequent absorption of the cataract. See *Eye*.

COUGH—*Tussis*. A concussion of the thorax, produced by sudden expulsion of the air from the chest, through the fauces. See *Catarrh* and *Hooping Cough*.

COUP DE SOLEIL—or Sun-stroke. A species of apoplexy caused by exposure to the sun in hot climates; the treatment adopted should be upon the same principles as regulate the physician in the case of *Apoplexy*, to which the reader is referred.

COWHAGE—*Dolichos Pruriens*. A plant of the class diadelphia, and order decandria, the pods of which are covered with sharp hairs or bristles; occasionally administered in an electuary as an anthelmintic, but the irrational practice of removing worms from the intestinal canal by mechanical treatment, has been long and properly abolished, and cowhage no longer deserves a place in the pharmacopeia, and is accordingly rejected from the formulæ of the United States.

COW POX. See *Fever*—(Eruptive.)

CRAMP. A spasmodic affection of the muscles. See *Spasm*.

CRANES-BILL ROOT. *Geranii Radix*; the root of the *Geranium Maculatum*; class, monadelphia; order, decandria. Astringent in operation, in doses of from ℥ j. to ℥ ij.

CROUP. See *Cynanche Trachealis*.

CRETINISM—*Cretinismus*. A disease prevalent in the deep vallies of the Alps, and other mountains, in which both the mental and bodily powers suffer to an astonishing degree; it is characterized by idiotism, diminished stature, sickly complexion, prominent lips and eye-lids, a flaccidity of the skin and muscles, enlargement of the abdomen, swellings of the various glands and joints, and particularly by its frequent combination with Goitre, or Bronchocele (which see.) The same reasons that have been advanced to account for the production of bronchocele, have been applied to the causes of Cretinism, and a very general opinion seems to have been entertained, that it was simply an excessive degree of rickets, caused by the humidity of the atmosphere; Dr. Mason Good has accordingly classed it in his genus, *Cyrtosis*, or contortion of the bones; it is, however, difficult to trace any analogy between Cretinism and Rachitis; in the former, the body is deformed from birth, and the mental powers correspond to the weakness of the frame; in the latter, which is generally the product of carelessness, acting especially upon a scrophulous constitution, the mind is not only unimpaired, but frequently, by its vigour, serves as a remarkable contrast to the corporeal debility. Another opinion has also found its advocates: from the frequent occurrence of Cretinism with Bronchocele, it has been supposed to be dependent upon it, and in fact occasioned by the enlargement of the thyroid gland,

interfering with the circulation, and preventing the flow of blood to and from the brain, by which the powers of that organ are impaired; this mechanical mode of accounting for the production of the disease, is opposed by the circumstance of Bronchoecle and Cretinism occurring in many cases, perfectly independent of each other. In North and South America, and Great Britain, Bronchoecle is not uncommon, but unassociated with any further affection either of the body or mind; besides, Cretinism exists from birth, Bronchoecle advances insidiously, not making its appearance before the eighth or twelfth year. In addition to these reasons, it would appear impossible that the circulation could be so greatly disturbed as to destroy the noblest power of life without a total destruction of the system. We therefore cannot ascertain any cause sufficient for the production of Cretinism, or regard the disease in any other light than as one of those mysterious dispensations inflicted on mankind, alike beyond the reach of our understanding and our art.

CRUSTA, or CRUSTA LACTEA. See *Eruptions*.

CUBEBS—Cubeba. The berries of the Piper Cubeba; class, dianthia; order, trigynia; a plant of Java, stimulant and slightly purgative—dose ʒ j. to ʒ iss. twice or three times a day.

CUTANEOUS DISEASES, The following is the valuable arrangement of Willan and Bateman: See “A Practical Synopsis of Cutaneous Diseases, according to the arrangement of Dr. Willan,” by Thomas Bateman, M. D., London, 1817. The same is also found in “A Practical System of Nosology,” by David Hosack, M. D., New-York, 1821, from which the definitions are extracted.

ORDER I. PAPULÆ; (from papula, diminutive of pappā, a nipple;) *Pimples.* Papulæ, or pimples, appear to originate in an inflammation of the papillæ of the skin, by which they are enlarged, elevated, and indurated, and made to assume more or less of a red colour. Sometimes even a slight effusion of lymph takes place, which gives a vesicular appearance to several of the papulæ; but the fluid is reabsorbed without breaking the cuticle, and they terminate, for the most part, in scurf.

Genus 1. STROPHULUS is the earliest form of chronic cutaneous disease ever observed; it comprises several popular affections peculiar to infants, and is known by the name of red-gum, or tooth-rash. The affection is attributable to the very vascular and irritable condition of the skin in infant life. In its ordinary state, it is consistent with perfect health, and need not be interfered with.

Species or Varieties.

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| STROPHULUS, | { | 1. <i>S. Intertinctus</i> , (red-gum or gown.) |
| | | 2. <i>S. Albidus</i> , |
| | | 3. <i>S. Confertus</i> , (tooth-rash.) |
| | | 4. <i>S. Volaticus</i> , |
| | | 5. <i>S.</i> |

Genus 2. LICHEN, (from *λεχνη*, a tetter.) An extensive eruption or papulæ, affecting adults, connected with internal disorder; usually terminating in scurf; recurrent, not contagious, and including tetters, ring-worm, prickly-heat, &c. All the varieties, which are little more than different degrees of the same affection, may require the same treatment: A low diet and regimen, avoiding exposure to the sun, and refraining from exertion; the use of tonics, particularly the sulphate of quinine, in combination with sulphuric acid, and in some cases of remarkable obstinacy, the employment of the solution of arsenic, will in general effect a cure. The troublesome itching accompanying this affection, is relieved by the usual sedatives; and, in very slight cases, by moderately stimulative lotions.

Varieties.

LICHEN,	{	1. <i>L. Simplex</i> ,	5. <i>L. Lividus</i> ,
		2. <i>L. Pilaris</i> ,	6. <i>L. Tropicus</i> ,
		3. <i>L. Circumscriptus</i> ,	7. <i>L. Urticatus</i> .
		4. <i>L. Agrius</i> ,	

Genus 3. PRURIGO; (from *prurio*, to itch.) Severe itching, accompanied by an eruption of papulæ, of nearly the same colour with the adjoining cuticle, affecting the whole surface of the skin, as well as some parts of the body locally. This disease resembles Lichen, in its external characters, but it is of a more chronic nature, and is further distinguished by the excessive itching it occasions. It differs from psora, (which see) in the circumstance of its never advancing to vesicle or pustule; also in being, in most cases, partial, and very usually restricted to the parts of generation and back, and in attacking old people. A great attention to cleanliness, the use of the warm bath, and occasional purgatives, form the general remedial measures, while the irritation may be relieved by lotions of vinegar and water, calomel and lime water, (the black wash,) &c.

Varieties.

PRURIGO,—1. *P. Mitis*, 2. *P. Senilis*, 3. *P. Formicans*.

ORDER II. SQUAMÆ; (*Scales*.) Opaque and thickened laminæ, of the cuticle, called scales; commonly produced by some degree of inflammation of the true skin, over which they are formed: occasionally the cuticle alone, or with the rete mucosum, appears in a morbid state.

Genus 1. LEPROA, (the leprosy.) Scaly patches, of different sizes, but having always a circular form. This is the most common, most obstinate, and most formidable of all the varieties of chronic cutaneous disease; in its simple form, it is recognized by its circular patches, covered with small shining scales, encircled by a dry, red, and slightly elevated, but well defined, border: it occurs at all periods of life, and except when very severe does not lead to much constitutional disturbance. With

respect to the pathology and treatment of lepra, we know but little; the cause is hidden in obscurity, and with the exception of duleamara, (woody nightshade twigs,) hardly two physicians have agreed in recommending the same means of cure; and even the influence of this medicine is frequently slight and transient. The most rational plan of treatment consists doubtless in an attempt to maintain the general health, by such means as the system may appear to require.

Varieties.

LEPRA,—1. *L. Vulgaris*, 2. *L. Alphoides*. 3. *L. Nigricans*.

Genus 2. PSORIASIS; (from ψωρα, the itch.) More or less roughness and sealiness of the cuticle, with a redness underneath; sometimes the eruption is diffuse and continuous, at others in regular patches of various sizes, but of an irregular figure, without the elevated border, inflamed margin, and the oval or circular outline of the leprous patches; the skin often divided by rhagades or deep fissures. It is commonly accompanied by some constitutional disorder, and is liable to cease and return at certain seasons; seldom or never contagious. This is a disease nearly as untractable as lepra, continuing, in many instances, throughout life, and defying every means of cure. In slight cases, the application of dilute citrine ointment, and the internal use of sulphur, combined with the carbonate of soda, have been of service.

Varieties.

PSORIASIS, (*Tetter*,) { 1. *P. Guttata*, 3. *P. Gyrota*.
2. *P. Diffusa*, 4. *P. Immaculata*.

Genus 3. PITYRIASIS; (from πτυρον, bran.) A very superficial affection, characterized by irregular patches of thin scales, which repeatedly exfoliate and recur, but never form crusts, or are accompanied with excoriations; not contagious. This is merely a local disorder, and requires little beyond the employment of slightly stimulating lotions.

Varieties.

PITYRIASIS, { 1. *P. Capitis*, (dandriff,) 3. *P. Versicolor*,
2. *P. Rubra*, 4. *P. Nigra*.

Genus 4. ICTHYOSIS; (from ιχθυα, the scale of a fish.) Characterized by a thickened, hard, rough, and in some cases, almost horny texture of the integuments of the body, with some tendency to sealiness; but without the deciduous exfoliations, the distinct and partial patches of psoriasis and lepra. This disease is but poorly combated by internal medicines; it will only yield to the warm bath, moderate friction, and in some instances, to slight compression of the hardened cuticle.

Varieties.

ICTHYOSIS,—1. *I. Simplex*, 2. *I. Cornea*.

ORDER III. EXANTHEMATATA; (*Rashes*.) Patches of superficial redness of the skin, of various extent and intensity, occasioned by an un-

usual determination of blood into the cutaneous vessels, sometimes with partial extravasation ; some of the exanthemata are contagious, others not ; some are attended by febrile symptoms, which others are free from ; and while some of the varieties continue for a definite time, others are of an uncertain duration.

Genus 1. RUBEOLA ; (from *ruber*, red ; measles.) The rash usually appears on the fourth day after attack, although it is occasionally present on the third, or only on the fifth or sixth. After a continuance of four days, it gradually declines with the febrile symptoms. See *Measles*, in the article of *FEVERS, Eruptive*.

Varieties.

RUBEOLA,—1. *R. Vulgaris*, 2. *R. Sine Catarrho*, 3. *R. Nigra*.

Genus 2. SCARLATINA ; (from *scarlatto*, the Italian for a deep red ; scarlet fever.) Characterized by a close and diffuse efflorescence of a high scarlet colour, which appears on the surface of the body, or within the mouth and fauces, usually on the second day of fever, and terminating in about five days ; propagated by a specific contagion, which usually shows its effects within five or six days after exposure. See *FEVERS, Eruptive*.

Varieties.

SCARLATINA,—1. *S. Simplex*, 2. *S. Anginosa*. 3. *S. Maligna*.

Genus 3. URTICARIA ; (from *urtica*, a nettle ; nettle-rash.) Distinguished by those elevations of the cuticle, generally called wheals, having a white top, and surrounded with a diffused red margin ; not contagious. This affection is frequently occasioned in consequence of having eaten some deleterious or unwholesome food, such as lobsters, muscles, &c. In these instances, it will be proper to evacuate the contents of the stomach by a brisk emetic, and afterwards administer copious acidulated draughts. The intolerable itching accompanying the eruption, may be allayed by the common spirituous or other cooling lotions. Where it occurs idiopathically, or in combination with inflammatory attacks of the viscera, which is occasionally the case, it requires no particular local treatment.

Varieties.

URTICARIA, {	1. <i>U. Febrilis</i> ,	4. <i>U. Conferta</i> ,
	2. <i>U. Evanida</i> ,	5. <i>U. Subcutanea</i> ,
	3. <i>U. Perstans</i> ,	6. <i>U. Tuberosa</i> .

Genus 4. ROSEOLA , (from *rosa*, a rose.) A rose-coloured efflorescence, variously figured, with wheals or papulæ ; for the most part symptomatic, occurring in connexion with different febrile complaints ; not contagious. Light diet, acidulated drinks, and occasional laxatives, will in general soon remove this efflorescence.

Varieties.

ROSEOLA,	{	1. <i>R. Æstiva</i> ,	5. <i>R. Variolosa</i> ,
		2. <i>R. Autumnalis</i> ,	6. <i>R. Vaccina</i> ,
		3. <i>R. Annulata</i> ,	7. <i>R. Miliaris</i> .
		4. <i>R. Infantilis</i> ,	

Genus 5. PURPURA ; (*πορφύρα*, the name of a shell of a purple colour.) An efflorescence consisting of small distinct purple specks and patches, attended with general debility, but not always with fever ; occasioned by an extravasation of the vessels under the cuticle. These specks and patches are *petechiæ*, (small red spots, resembling flea-bites,) *ecchymomata*, (small black and blue swellings, like those occasioned by a bruise,) or *vibices*, (large purple spots, resembling those observed under the cuticle in malignant fevers.) The treatment of this affection, must be regulated by the condition of the system at the time of its appearance; if accompanied with symptoms of fever or internal inflammation, or when occurring in consequence, antiphlogistic measures must, of course, be resorted to ; while, on the other hand, when the state of the patient indicates a depression of the vital powers, the use of tonics, the mineral acids in particular, wine, and exercise in the open air, change of scene, &c. must be recommended.

Varieties.

PURPURA,	{	1. <i>P. Simplex</i> ,	4. <i>P. Senilis</i> ,
		2. <i>P. Hæmorrhagica</i> ,	5. <i>P. Contagiosa</i> .
		3. <i>P. Urticans</i> ,	

Genus 6. ERYTHEMA ; (from *ερυθρος*, red.) A nearly continuous redness of some portion of the skin, attended with disorder of the system, of which it is commonly symptomatic ; like roseola, the symptom is sometimes so prominent as to confuse the unpractised observer, who regards the eruption as idiopathic. It assumes a variety of forms.

Varieties.

ERYTHEMA,	{	1. <i>E. Fugax</i> ,	4. <i>E. Pupulatum</i> ,
		2. <i>E. Læve</i> ,	5. <i>E. Tuberculatum</i> ,
		3. <i>E. Marginatum</i> ,	6. <i>E. Nodosum</i> .

ORDER IV. BULLÆ ; (*Blebs*.) Large and often irregular vesications, which discharge a watery fluid when they break ; the excoriated surface is sometimes covered with a flat yellowish or blackish scab, which remains till a new cuticle is formed underneath, or in some cases, converted into an obstinate ulcer.

Genus 1. ERYSIPELAS ; (from *ερωω*, to draw, and *πελας*, adjoining, from the neighbouring parts being affected by the eruption.) A febrile disease, in which some part of the body is affected with heat, redness, swelling and vesications ; a tumour forms, which is soft, diffusive, and irregular, unaccompanied by throbbing or acute pain ; the last men-

tioned circumstances, distinguish it from phlegmon, and the presence of the tumour and vesication, from erythema. (See *Erysipelas*.)

Varieties.

ERYSIPELAS, { 1. *E. Phlegmonodes*, 3. *E. Gangrænosum*,
2. *E. Œdematodes*. 4. *E. Erraticum*.

Genus 2. PEMPHIGUS; (from *πεμφιξ*, a bubble or vesicle.) An acute disease, characterised by an eruption of phlyctænæ, or vesications with inflamed bases, appearing in succession on different parts of the body, and sometimes in the mouth. It differs from erysipelas in its progress and duration, but is more particularly distinguishable from that disease, from not exhibiting any tumefaction or redness of the parts, beyond the circumference of the bases of the vesications. When occurring alone, pemphigus is rather a troublesome than a dangerous disorder, and at first requires little more than strict cleanliness, and care in preventing the vesicles being rubbed; when the vesicles are few in number they should be punctured, and afterwards dressed with spermaceti ointment, and if they display any tendency to sloughing, they may be lightly touched with the nitrate of silver; but when they are very numerous, and considerable inflammation prevails, the antiphlogistic plan must be carried into effect, and a few ounces of blood withdrawn from the arm. Chronic pemphigus may be relieved by emollient tepid lotions, warm bathing, a change of air, &c. to which may be added oleaginous and narcotic embrocations where much itching is complained of, and an occasional aperient draught.

The pemphigus of advanced life, always attended with debility, and sometimes ending in gangrene, demands tonics, cordials, &c. and a strict avoidance of active purgative medicines, or any measures calculated to weaken a system already so much reduced.

Varieties.

PEMPHIGUS,—1. *P. Vulgaris*, 2. *P. Contagiosus*, 3. *P. Infantilis*.

Genus 3. POMPHOLYX; (from *πομφος*, a bladder,) is strictly a chronic cutaneous disease, consisting of an eruption of bullæ or vesicles, without any inflammation round them, and without fever; these vesicles are of various sizes, from that of a pea to the magnitude of a walnut. The affection often lasts for a month or six weeks, and appears to be connected with some cachectic or depraved and debilitated state of the whole system. It is particularly obstinate and severe in old people, producing great itching and inconvenience, and sometimes, from the extent of surface occupied by the eruption, and the occasional intermixture of livid vesicles, it presents a very formidable appearance. Medicine exerts but little power over it, and all our care must be employed, in affording such a tone to the system at large, as to destroy one effect of its weakness.

Varieties.

POMPHOLYX,—1. *P. Benignus*, 2. *P. Diutinus*, 3. *P. Solitarius*.

ORDER V. PUSTULÆ; (*Pustules*.) Originating from an inflammation of the skin, and the consequent partial effusion of purulent matter under the cuticle, by which the latter is elevated into small circumscribed tumours, which often terminate in a scabby incrustation, varying in hardness, according to the degree of tenacity of the contained fluid, or sometimes in a superficial ulceration. Some of the genera are contagious, others not; some of a chronic, and others of an acute character.

Genus 1. IMPETIGO. Small pustules, often irregularly circumscribed, producing but a slight elevation of the cuticle, and terminating in a laminated scab; these are sometimes confluent, and after the discharge of pus, pour out a thin watery humour, which frequently forms an irregular incrustation. Not characterized by fever, not contagious, nor communicable by inoculation. The causes of this affection are but little known, but they are probably dependent upon general debility or relaxation, with a skin peculiarly irritable; poor diet, filth, fatigue, and local stimulants may likewise operate in its production. Calomel in doses of five or six grains at night, with a cathartic draught the following morning, the combination of the carbonate of soda and sulphur; the vegetable acids combined with conium (hemlock) have all proved beneficial in its treatment; to allay the irritation experienced, an emulsion of bitter almonds, with a small quantity of the prussic acid, has been found singularly efficacious; to remove the incrustations, the sulphur vapour bath, the warm bath, and emollient poultices, may be resorted to.

Varieties.

IMPETIGO, {	1. <i>I. Figurata</i> ,	4. <i>I. Scabida</i> ,
	2. <i>I. Sparsa</i> ,	5. <i>I. Rodens</i> .
	3. <i>I. Erysipelatodes</i> ,	

Genus 2. PORRIGO; (*a porrigendo*, from its spreading abroad; *favosa* of Willan.) A small acuminate pustule, containing a straw-coloured matter, having the appearance, and nearly the consistence of honey, succeeded by a thin brown or yellowish scab; sometimes a pustule forms, flatter and not acuminate, containing more viscid matter, with the base irregular and slightly inflamed; this kind is succeeded by a yellowish transparent and sometimes cellular scab, whence the name of *favus* has been applied to it. It chiefly affects children from the period of dentition up to the fourth or fifth year of life, or even later, and is contagious. Porriginous eruptions occur in different states of the system, although chiefly attributable to a gross diet and connected with plethora; at times, however, they arise in feeble

and relaxed habits, and appear in combination with cachexia and marasmus; the treatment of course must be regulated according to the circumstances under which it occurs; in general, purgatives are necessary, and where as frequently it appears in children, powders of calomel and scammony, may with propriety be administered.

Varieties.

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| PORRIGO, | { | 1. <i>P. Larvalis</i> , | 4. <i>P. Scutulata</i> ; (Ringworm of the |
| | | 2. <i>P. Perfurans</i> , | scalp.) See <i>Ringworm</i> , |
| | | 3. <i>P. Lupinosa</i> , | 5. <i>P. Decalvans</i> , |
| | | | 6. <i>P. Fuvosa</i> . |

Genus 3. ECTHYMA; (from *εχθνεiv*, to rage, or break forth.) An eruption of a large size, raised on a hard circular base, of a vivid red colour, and succeeded by a thick hard dark-coloured scab; usually distinct, arising at a distance from each other, and seldom very numerous. This affection is nearly always dependent upon debility of system, when the vessels of the skin give way, either spontaneously, or from very slight causes, and there is not sufficient energy in the constitution to repair the injury. Nourishing food, a change of air, moderate exercise, and the classes of alteratives and tonics, are necessary in the promotion of a cure, while local irritation may be allayed by saturnine lotions or any mild and soothing application.

Varieties.

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| ECTHYMA, | { | 1. <i>E. Vulgare</i> , | 3. <i>E. Luridum</i> , |
| | | 2. <i>E. Infantilis</i> , | 4. <i>E. Cachecticum</i> . |

Genus 4. VARIOLA; (from *varius*, changing colour, *Small Pox*.) An eruption of red papulæ, beginning on the third day of fever, and ending on the fifth or sixth; these papulæ suppurate in the course of eight days, and at last fall off in crusts, often leaving depressed scars or little pits in the skin. Contagious. (See **FEVERS**, *Eruptive*.)

Varieties.

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| VARIOLA,— | 1. <i>V. Discreta</i> , | 2. <i>V. Confluens</i> . |
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Genus 5. SCABIES; (from *scabo*, to scratch; *Itch*.) An eruption of pustules or of small vesicles, which are subsequently intermixed with, or finally terminate in pustules; accompanied by constant itching, without fever, and very contagious. It appears occasionally on every part of the body, the face only excepted, but more especially about the wrists and fingers, the fossa of the nates, and the flexures of the joints.

Varieties.

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| SCABIES, | { | 1. <i>S. Papuliformis</i> , (Rank itch,) |
| | | 2. <i>S. Lymphatica</i> , (Watery itch,) |
| | | 3. <i>S. Purulenta</i> , (Purley itch,) |
| | | 4. <i>S. Cachectica</i> . |

ORDER VI. VESICULÆ; (Vesicles.) Characterized by a small orbicular elevation of the cuticle, containing lymph, which is sometimes clear and colourless, and at others of a white or yellowish hue, and opaque; succeeded either by scurf, or by a laminated scab.

Genus 1. VARICELLA; (diminutive of *varius*, so called from its changeable appearance; *Chicken Pox*, *Swine Pox*, &c.) The vesicle bearing a close resemblance to the pustule of variola, but seldom suppurates; in a few days it ends in a crust, which falls off without leaving any scar; it is attended with little fever. (See **FEVERS, Eruptive.**)

Varieties.

VARICELLA, { 1. *V. Lenticularis*, 3. *Globata* (Hives.)
2. *V. Conoidalis*,

Genus 2. VACCINIA; (from *vacca*, a cow; *Cow Pox*.) The characteristic of this eruption is a semi-transparent pearl-coloured vesicle, with a circular or somewhat oval base, its upper surface, until the end of the eighth day, being more elevated at the margin than in the centre, and the margin itself being turgid, shining and round, so as often to extend a little over the line of the base. This vesicle is filled with a clear lymph, contained in numerous little cells, that communicate with each other. After the eighth or ninth day from the insertion of the virus, it is surrounded by a bright red circumscribed areola, which varies in its diameter, in different cases, from a quarter of an inch to two inches, and is usually attended with a considerable tumour and hardness of the adjoining cellular membrane. This areola declines on the eleventh or twelfth day; the surface of the circle then becomes brown in the centre, and the fluid in the cells gradually concretes into a hard rounded scab, of a reddish brown colour, which at length becomes black, contracted and dry, but is not detached until after the twentieth day from the inoculation. It leaves a permanent circular cicatrix, about five lines in diameter, and a little depressed, the surface being marked with very minute pits or indentations, denoting the number of cells of which the vesicle had been composed. (See **FEVERS, Eruptive.**)

Genus 3. HERPES; (from *ερω* to creep.) A vesicular disease, which in most of its forms, passes through a regular course of increase, maturation and decline, terminating in most cases in about a fortnight, or three weeks. The vesicles arise in distinct but irregular clusters, appearing in quick succession, being set near together, and upon an inflamed base, which extends some way beyond the margin of each cluster; the lymph of the vesicles, which is at first clear and colourless, becomes gradually milky and opaque, and ultimately concretes into scabs; but in some cases, a copious discharge of this lymph takes place, and tedious ulcerations ensue. Young persons, from fifteen to twenty-five years of age, are most commonly subject to this disease, and as it

is most frequent in the summer and autumn, it probably depends, in some degree, from exposure to cold after violent exercise; in the generality of cases it is strictly a local affection, and needs little more than an occasional aperient, such as the common senna mixture and Epsom salts; we however sometimes meet with an attack where an extensive eruption is preceded by considerable constitutional derangement, and is accompanied by a sensation of heat and tingling, and sometimes by severe deep-seated pain in the neighbourhood of the parts affected; in such instances, a more vigorous plan of treatment must be adopted to meet the symptoms, which are probably symptomatic of some internal disorder, the nature of which must guide the judgment of the physician.

Varieties.

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| HERPES, | { | 1. <i>H. Phlyctænodes</i> , | 4. <i>H. Labialis</i> , |
| | | 2. <i>H. Zoster</i> (Shingles), | 5. <i>H. Præputialis</i> , |
| | | 3. <i>H. Circinatus</i> (Ringworm,) 6. <i>H. Iris</i> . | |

Genus 4. RUPIA; (from *ρυπος*, *sordes*, as indicative of the ill-smell and sordid condition of the parts.) Characterized by an appearance of broad and flattish vesicles, in different parts of the body, especially upon the extremities, slightly inflamed at their bases; they are slow in their progress, seldom or ever becoming confluent, and succeeded by an ill-conditioned discharge, which concretes into thin and superficial scabs, easily rubbed off, and quickly regenerated; the cause of the production of this affection is the same as that of *Ecthyma*, of which it appears to form a variety; the treatment may also be the same in both disorders.

Varieties.

RUPIA,—1. *R. Simplex*, 2. *R. Prominens*. 3. *R. Escharotica*.

Genus 5. MILIARIA; (from *milium*, a millet seed.) A scattered eruption of minute round vesicles, about the size of millet seeds, surrounded by a slight inflammation or rash, and appearing at an uncertain period of febrile disorders. The eruption is usually preceded by profuse perspiration, a sense of great heat, with a prickling in the skin, and is most abundant upon the neck, breast and back, being sometimes in irregular patches, and at others more diffused over an extensive surface; during the progress of the disease, aphthous vesicles and sloughs occasionally appear in the mouth and fauces. (See *FEVERS, Eruptive*.)

Genus 6. ECZEMA; (from *ἐκζεω*, to boil out.) An eruption of small vesicles on various parts of the skin, usually crowded together, with little or no inflammation round their bases, and unattended by fever, unless when very extensively diffused, when they may give rise to some constitutional irritation; one of the most common local causes, is the direct rays of the sun, upon an irritable skin, while an occasional constitutional cause is from the action of mercury in individuals, peculiarly

predisposed to cutaneous affections; the duration of the eruption is uncertain, but it seldom lasts longer than a month or six weeks. Mild saline aperients, spare diet, the warm bath, and frequent sponging of the parts with tepid water, are the only measures we need have recourse to.

Varieties.

ECZEMA.—1. *E. Solare*, 2. *E. Impetiginodes*, 3. *E. Rubrum*.

Genus 7. APHTHA; (from *απτω*, to inflame; *Thrush*.) Aphthæ are small, whitish or pearl-coloured vesicles appearing on the tongue, the lips, and the interior of the mouth and throat, generally in considerable numbers, proceeding to superficial ulceration, and usually terminating by an exfoliation of whitish crusts. (See *Thrush*.)

Varieties.

APHTHA,—1. *A. Lactantium*, 2. *A. Adulterum*, 3. *A. Anginosa*.

ORDER VII. TUBERCULA; *Tubercles*. Tubercles, small, hard, superficial tumours, circumscribed and permanent, or suppurating partially.

Genus 1. PHYMA; (from *φύω*, to produce.) A small tubercle imperfectly suppurative, occurring in the cutaneous or sub-cutaneous textures; the abscess thickened and indurated at the edge, the pus foul and sanious; in consequence of the imperfection of suppuration, a core or fungus is frequently left behind, sometimes of a black and spongy, at others of a granulating nature. (See *Boil* and *Anthrax*.)

Varieties.

PHYMA, { 1. *P. Terminthus*, 3. *P. Furunculus* (Boil),
2. *P. Epinyctus*, 4. *P. Carbuncle* (Anthrax.)

Genus 2. VERRUCA; (*a Wart*.) This term denotes the cuticular excrescences, usually called *warts*. (See *Warts*.)

Genus 3. MOLLUSCUM; (*a soft substance*.) This form of tubercular disease is characterized by numerous tubercles of slow growth, little sensibility, and varying in size from that of a millet seed to that of a pigeons' egg; these contain an atheromatous matter, are of various forms, some sessile, globular or flattish, others attached by a neck, and pendulous; they are apparently unconnected with any constitutional disorder, have no tendency to inflammation or ulceration, and frequently continue throughout life.

Genus 4. VITILIGO; (from *vitio*, to infect; *Veal-skin*.) Smooth white shining tubercles, sometimes in particular parts, as about the ears, neck, and face, at others, nearly over the whole body, intermixed with shining papulæ; in some cases they reach their full size in a week (attaining the magnitude of a large wart) and then begin to subside, becoming flattened to the level of the cuticle in about ten days; in other instances, they advance less rapidly, and the elevation which they acquire is less considerable; their duration however is longer, and as

they gradually subside to the level of the surface, they creep along in one direction, as, for example, across the face or along the limbs, chequering the whole superficies with a veal appearance. All the hairs drop out, wherever the disease extends, and never sprout again: a smooth shining surface is left, as if polished, and the morbid whiteness remains through life, seeming to shew that the patches are no longer possessed of red blood-vessels, and that the white hue of the rete mucosum alone, is visible in their respective areas, exhibiting a pure white, only differing from that of death in being glossy, from the action of a living principle.

This affection never proceeds to ulceration, and, like molluscum, may be more properly regarded as a blemish than a disease, both hardly admitting either cure or palliation.

Genus 5. ACNE; (*ακνῆ*, a small pimple.) An eruption of distinct, hard, inflamed tubercles, sometimes permanent for a considerable length of time, and generally proceeding to a slow and partial suppuration; they usually appear on the forehead, temples and chin, sometimes on the neck and shoulders, but never on the lower part of the trunk or extremities. This disease consists of simple obstruction to the free passage of the sebaceous matter to the surface of the skin; it is a common complaint from the age of puberty to the twenty-fifth year, and in general attacks the male sex. It is perfectly a local affection, causing no constitutional derangement, and frequently re-appearing after a recession from violent exercise, intemperance, or a sudden change of the weather. No remedies are of any avail either internal or external; the affection proceeds to a natural and perhaps distant termination, in spite of every effort to subdue it.

Varieties.

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| ACNE, { | 1. <i>A. Simplex</i> , | 3. <i>A. Indurata</i> , |
| | 2. <i>A. Punctata</i> , | 4. <i>A. Rosacea</i> (Pimpled face.) |

Genus 6. SYCOSIS; (from *συκῆ*, a fig.) An eruption of inflamed, but not very hard tubercles, occurring on the bearded portion of the face, and on the scalp, in adults, usually clustering together in irregular patches, and throwing forth an ichorous, copious, and fœtid discharge; it appears closely allied to acne, with this distinction, that it only occurs in parts covered by hair, more especially the chin, and that it is more tractable. Sycosis is seldom accompanied by any constitutional symptoms, and offensive as it is, will generally yield to cleanliness and mild astringents, of which starch powder alone, or mixed with an equal portion of calamine, is perhaps the best.

Varieties.

- SYCOSIS,—1. *S. Menti*, 2. *S. Capillitii*.

Genus 7. LUPUS. A tubercular affection, generally attacking the

face, and ending in ragged ulcerations of the cheeks, forehead, eye-lids and lips; whenever it does occur in other parts of the body, the skin, and sometimes the subjacent muscles, are destroyed to a considerable depth. In some instances the disease appears in the cheek in a circular form, having the appearance of ring-worm, rapidly destroying the integuments and leaving a deep cicatrix. This is the *noli me tangere* of some authors, and from the extreme virulence of its attack, Sauvages has given it the name of "*cancer lupus*;" when it commences, as is not uncommon, on the alæ of the nose, it appears somewhat to deserve this appellation, as in bad cases it not only destroys the fleshy but even the cartilaginous parts. (See *Noli me tangere*.)

Genus 8. ELEPHANTIASIS. This is principally characterised by the appearance of shining tubercles of different sizes, of a dusky red or livid colour on the face, ears and extremities, together with a thickened and rugous state of the skin, a diminished or total loss of its sensibility, and a falling off of the hair, except that on the scalp. (See *Elephantiasis*.)

Genus 9. FRAMBÆSIA; (from *framboise*, the French for a raspberry; *Yaws*.) After several days of slight febrile suffering, minute protuberances appear on various parts of the skin, at first smaller than the head of a pin, but gradually enlarging, in some cases to the diameter of a sixpence, and occurring chiefly in the face, axillæ, groins, and about the anus and pudenda; this eruption increases for about ten days, when pustules form which are succeeded by loose irregular crusts, beneath which are foul sloughy ulcers, which gradually throw out a fungus, resembling in size and appearance a raspberry, whence the name; these ulcers never suppurate kindly, but discharge a sordid glutinous fluid, which forms a scab around the edge of the excrescence, and covers the upper part of it with white sloughs, which however do not leave any cicatrix. The disease may exist for six or eight months, when it will generally wear itself out; it arises from a specific contagion, and once undergone, the susceptibility to future infection is removed; the general health is but little, and sometimes not at all impaired in the progress of the complaint, which may be propagated by inoculation, although without any advantage as to the mildness or shortness of the disease that follows. In Africa, it is experienced, like the measles of other countries, during childhood. Medicine exerts but little influence in this affection; its course is run (and without much danger) notwithstanding every effort to stay it; towards its decline, however, it is prudent to administer tonics, such as sarsaparilla, bark, and sulphuric acid, &c. and these with a generous diet will quicken a restoration to convalescence.

It is worthy of remark, that when the yaws appear in any part of the body, covered with hair, it is soon changed from a dark colour to white,

independently of the white incrustation from the discharge; upon the recovery of health, the hair is also restored to its natural appearance.

ORDER VIII. MACULÆ; (Spots.) Maculæ, or Spots, comprise those discolourations of the skin which are permanent, and most of which are the result of an alteration of the natural texture of the part. It comprehends, therefore, several varieties of connate, and acquired disfigurements of the skin, some of which cannot be destroyed, and the most of them only removable by the knife.

Genus 1. EPHELIS; (from *επι*, by, and *ηλιος*, the sun; *Freckles*.) This term denotes not only the little yellow *lentigines* which appear on persons of fair skin, and the larger brown patches which arise from direct exposure to the rays of the sun, but also those dusky spots, which are very similar in appearance, occurring, however, in those parts of the body kept constantly covered.

Genera 2 and 3. NÆVUS ET SPILUS; (*Spots and Blemishes*.) These include the various congenital excrescences and discolourations of the skin; they exhibit many peculiarities of form, magnitude, colour, and structure, and are seen in almost every part of the surface of the body. Some of them are merely superficial, or stain-like spots, and appear to consist of a partial thickening of the rete mucosum, of a yellow, yellowish brown, blue, livid, or nearly black colour, and to these the term *spilus* has been more particularly appropriated. Others again exhibit various degrees of thickening, elevation, and altered structure of the skin itself, consisting of clusters of enlarged and contorted veins, freely anastomosing with other veins and arteries, and forming little sacs of blood. (See *Aneurism by Anastomosis*.) These are sometimes spread more or less extensively over the surface, or elevated into prominences of various forms and magnitude, occasionally of the usual colour of the skin, but more commonly of a deep purple colour.

The following authors on cutaneous diseases may be consulted:—Turner, Plenck, Willan, Bateman, Plumbe, Wilson, and Alibert, (Paris.)

CYNANCHE;* (from *κυν*, a dog, and *αγχω*, to strangle or suffocate, from the oppression of respiration in this class of diseases; *Sore Throat*.) There are five species of this disease: I. *C. Trachealis vel Laryngea*; II. *C. Tonsillaris*; III. *C. Pharyngea*; IV. *C. Parotidæa*; and V. *C. Maligna*. The first, or *Cynanche Trachealis*, is better known under the name of croup, a disease so common and so fatal to childhood. It generally appears in a very acute form, either yielding or destroying within thirty-six hours, although its attack is occasionally more of a chronic nature, taking some weeks to run its course. The acute form, or common croup, usually commences with the symptoms of catarrh, consisting essentially of a peculiar kind of inflammation of the air pas-

* The Quinsy, Squinsy, or Squinaney of the old writers, is now treated of under the heads of Cynanche and Angina.

sages, throughout the range of the trachea, to the most minute ramifications of the bronchial tubes, and hence formerly named bronchitis, but which name has of late been applied to certain *symptoms* occurring in catarrh and pneumonia. The croup first attacking the large tubes, rapidly spreads; an exudation of coagulable lymph succeeding to the inflammatory process, which assumes a membranous form, and lines the trachea, both above and below its divarication; this membrane corresponds to the form of the canals in which it is lodged, and is usually of a firmer consistence in the upper than in the lower parts; some short time after its formation, it begins to be detached from the mucous coat to which it is applied, and is discharged by coughing; a second secretion becoming concrete, taking its place, and constituting a second false membrane. It is a disease almost peculiar to the early period of existence, seldom occurring after the twelfth year, and would appear to arise generally from the effects of cold, being more frequent in the winter and spring months. A cough, slight in its commencement, quickly increases to a distressing degree, accompanied by a peculiar shrill and brassy sound, which affecting the respiration also, occasions what is called the croupy noise, and which is readily indicative of the disease. An acute pain generally prevails in the situation of the larynx, whilst the constant efforts to clear the air passages by coughing, causes a discharge of a purulent matter, or shreds of the membrane already alluded to; a frequency of pulse, an uneasy sense of heat, and great restlessness prevail; the countenance exhibits the greatest distress, while the head and face are bathed in perspiration; the lips and cheeks becoming pale and livid. These various symptoms are recognizable as the disease advances, until effusion takes place, when the case is generally hopeless.

Treatment.—In no complaint is the strict antiphlogistic plan more strongly demanded than the one before us. At the commencement of the attack, the great design is to moderate the increased action in the mucous membrane of the respiratory organs, by very copious bleeding, either from the jugular veins, or through the medium of leeches applied to the throat; by the administration of emetics, and repeated doses of jalap and calomel, until the bowels have been well acted upon: the warm bath is a most important auxiliary, and should never be dispensed with. When, however, the disease is not checked by this treatment, and the second stage, or that of effusion, is fully formed, the little that can be accomplished with a rational hope of success, must still tend to the diminution of the circulatory action, and so preventing the further effusion of lymph, and the promotion of the loosening and the discharge of that which already obstructs the respiratory passages. To answer these purposes, nauseating draughts of the solution of tartarized antimony, may be given, a blister applied over the throat or sternum, having recourse to

blood-letting whenever an increase of inflammatory symptoms demands it, and calomel, in doses of from one to three grains, every second hour; repeated doses of calomel have acted with surprising effect in some cases recorded by Dr. Home, appearing not only to excite a strong and salutary counteraction, but also to prevent the further secretion of lymph. It is by no means uncommon for the strength of the child to be overcome by the severity of the remedies, when the disease is of some days' continuance; and in such cases, cordials must be administered, although with a sparing hand. The powders of antimony and ipecacuanha are much employed by some physicians as relaxants, and given during the action of the calomel; and when that has subsided, opium or hyoscyamus is combined with them in its stead. The hydrocyanic, or prussic acid, has also its advocates in this disease; and when we consider its wonderful sedative powers, we may be inclined to give it a trial as in pertussis; of course, in carefully regulated doses. What is called the chronic variety of croup, consists in an aggregation of small or large masses of lymph, coughed up from the bronchiæ, and attached to the sides of the larger tubes, acquiring by degrees an organization; this disease is rare, and occurs in adults, and may be occasioned by the same causes that give rise to the acute kind. The treatment will be essentially the same, governed by the nature of the symptoms. A free course of calomel and mercurial friction, with occasional doses of digitalis, and the application of a blister to the throat, or a seton in the back of the neck, are perhaps the best modes of combatting this affection.

Cynanche Tonsillaris—Angina Inflammatoria—Common Quinsy, or Inflammatory Sore Throat. Generally occasioned by cold, and most frequent in the vernal and autumnal months, when the seasons are changeable. It usually attacks the young and robust, although no age or condition of system is free from its approach. The inflammation attacks and produces a florid redness and considerable swelling in the fauces and tonsils, greatly impeding the act of swallowing, and sometimes the speech and respiration: the secretion of saliva is sparing, whence a great dryness and clamminess in the mouth, accompanied by a foul tongue. The pain in the region of the throat is of a lancinating character, sometimes spreading to the ears; and the pulse is full and frequent. The disease is never contagious, and usually terminates after a few days' duration, by resolution or suppuration; seldom taking on a gangrenous stage, although a few sloughy spots may occasionally be observed on the fauces. In more severe cases, the disease rapidly advances, with an aggravation of every symptom, and an increase of fever, when the inflammation may extend so far as to put a stop to respiration, and destroy the patient.

Treatment.—The first stage is greatly benefited by astringent and acid

gargles; such as an infusion of mezercon root, with cayenne pepper or capsicum, or an aromatic mixture, in combination with a small quantity of the sulphuric or muriatic acids; but where acute symptoms of inflammation appear, accompanied by much fever, the use of the lancet will be required, with blisters to the throat and behind the ears. A perseverance in cooling purgatives, and low diet, in addition to the application of the linimentum ammoniæ on flannel, worn round the throat for a few hours, will frequently check the progress of the complaint; when, however, this effect is not produced, the early use of leeches to the tonsils may still promote a cure by resolution of the inflammation.* If suppuration cannot be prevented by these means, the wiser plan will be to expedite its progress by the steam of warm water, or water impregnated with the leaves of chamomile, and the application of a large emollient poultice round the throat, and when an abscess is formed, unless it break readily, it is prudent to open it with the lancet, promoting the discharge and bleeding, by repeated warm gargles. The most unfavourable circumstances attendant upon this disease are, when so acute an inflammation attacks both tonsils, as to prevent, by their enlargement, the passage of food into the œsophagus, or air from the lungs, and if all means of relief already described, and a free scarification of the tonsils be of no effect, the operation of tracheotomy presents the only chance remaining of saving the life of the patient.

Cynanche Pharyngea or *quinsy of the pharynx* is of rare occurrence, when it occurs singly, as an affection of that organ: it has been classed by Dr. Wilson, as merely a variety of the former affection, and is only distinguished by its locality; a pure case of this cynanche, or where the inflammation was perfectly confined to the pharynx, has hardly ever been met with; when it is more acute there, than elsewhere, it receives this denomination. A florid redness at the lower part of the fauces, a pain about the upper part of the sternum, aggravated in deglutition, the breathing being little, or not at all affected, and a slight degree of fever, form the usual symptoms of this affection, which is, in general, readily relieved by mucilaginous medicines, slowly swallowing small quantities of the solution of nitre, and relieving the system, when much oppressed, by the usual antiphlogistic measures.

Closely allied to cynanche pharyngea is *cynanche œsophagea*, and which may be entitled to as distinct a classification; it is unnecessary, however, to multiply subdivisions, or to enlarge further upon it, than to observe that the affection is precisely of the same nature, only occurring

* It is now admitted that leeches fix more readily on internal surfaces than on the skin; if any fear be entertained lest they may slide down the œsophagus, when applied to the tonsils, they can easily be secured previously, by passing a thread through the lower half of the body.

lower down than the preceding, and that the same treatment is applicable. (For other diseases and stricture of the *Œsophagus*, see that article.)

Cynanche Parotidea. Mumps. An epidemic and contagious disease, affecting the parotid glands in particular, but sometimes extending to the submaxillary glands, characterized by a swelling on the cheeks, under the jaws, and in the upper parts of the neck; the inflammation rarely tends to suppuration, and gradually increases until the fourth day after attack.

The mumps are contagious and epidemic, generally attacking children, and not often attended with much danger, requiring little more than an additional degree of warmth to the parts, low diet, and mild laxative medicines; a metastasis frequently takes place, when the disease occurs in adults, from the parotid region to the mammæ in females, and to the testes in males, when more active treatment may become necessary, in general, and topical bleedings, and a stricter antiphlogistic regimen; this metastasis must not however be regarded as an unfavourable symptom, for it has been observed, that where this sympathy has not been manifested, the attendant fever has been greatly increased, whereas in those cases where it appears, but little constitutional disturbance exists, and a little care is only necessary to prevent too high a degree of inflammation in the parts to which it has removed. In some few instances, the brain has been the organ to which the disease has been determined, and when this is the case, all the aid that professional skill can afford is imperatively demanded; it may be proper to recall the inflammation as far as possible to its former seat, by warm fomentations, stimulant liniments, &c. while the inflammatory affection of the brain itself, must be met with copious bleedings, and the whole range of remedies we are accustomed to employ in phrenitis.

Cynanche parotidea sometimes assumes a chronic form, and is then apt to possess a malignancy apparently foreign to its real nature, rarely healing if the gland suppurate, and at length undermining, by a perpetual and offensive discharge, and destroying the system. To counteract such a disposition, which occasionally appears in female life when the catamenia ceases, frequent emetics of the preparations of antimony or ipecacuanha may be given, at the same time attending carefully to the state of the bowels; but the fatal nature of this chronic affection of the parotid gland is generally too apparent to the physician to permit him to cherish any very favourable prognosis. Dr. Neumann, in Silesia, has made extensive trials of the hydriodate of potass, combined with eight times its weight of mercurial ointment, in the form of a plaster, applied to the gland, at the same time administering emetics,

and this practice is fairly entitled to a trial, as well in the chronic as in the acute stages of the disease.

Cynanche Maligna. *Malignant, putrid, or ulcerous sore throat.* This is the worst and most fatal form of cynanche, generally occurring in conjunction with typhus, or as a symptom of scarlet fever; commencing with violent inflammation, it soon passes into the ulcerative stage, and is characterized by a crimson redness, pervading the fauces and tonsils, which are covered with mucus and extensive white sloughs; the pulse is generally small and fluttering, the debility extreme, while a general pain and soreness, preceded by a sense of stiffness in the neck, and hoarsoness, with great difficulty of swallowing, is experienced. It is epidemic and contagious, and as the sloughs appear to carry contagion with them, they spread the disease through every portion of the intestinal canal of the patient; as the disease advances, the sloughs become of a darker colour, extend into the nostrils and eustachian tubes, quickly proving fatal, from the effects of the typhus fever that accompanies it, from its commencement to its termination. See *FEVERS, Scarlet and Typhus.*

CYSTITIS; (from *κυστις*, the bladder.) *Inflammation of the Bladder.* See *Urinary passages, diseases of.*

CYSTOCELE; (from *κυστις*, the bladder, and *κηλη*, a tumour.) *Hernia of the bladder.* See *Hernia.*

DANCE, ST. VITUS'S. See *Chorea.*

DEAFNESS. *Paracusis*, (from *παρακουω*, depraved hearing.) This may be occasioned by a derangement of the structure, or function of the organ of hearing, may be total or partial, in one or in both ears:—these circumstances affecting either the outer or internal ear, may be thus classed, and described.

I. Wounds of the External Ear. In these cases, the hearing is not more affected, than by the extent of the loss of those convolutions, which concentrate the sound, before its passage into the meatus auditorius. These parts may be injured or totally lost from the bites of animals, sabre-cuts, &c.; wherever it is practicable, an attempt must be made to restore them to their situation, and accomplish union, by the first intention, when the sense of hearing will be amended if not completely restored. When the external ear is totally destroyed from the above causes, or from the effects of frost or syphilis, the want of this portion of the acoustic apparatus, can only be supplied by artificial means, such as an ear trumpet, &c.

II. Malformation of the Meatus Auditorius. There are several varieties of deafness, arising from this cause, and when congenital, and both ears are in the same situation, the sufferer is dumb also. The defect may arise, 1st, from the *meatus being obstructed by a membrane in*

any part of its canal; this may easily be relieved by piercing the obstruction, with a sharp-pointed bistoury, cutting away a portion of the membranous septum, and keeping the parts asunder by a tent until they are healed; some practitioners have preferred the use of caustic, in destroying the obstruction, but the above plan is safer, easier in operation, and not productive of so much irritation. In some rare instances, a bony formation has occurred within the meatus, and when this is the case, interference is almost useless, from the attachments of the obstruction. 2. *An unusual smallness of the auditory passage*, giving rise to partial deafness, may be relieved, whenever the constriction exists solely in the soft parts, by the use of tents and bougies, which, by a persevering use, will effect a dilatation to the natural size. 3. *An absolute cohesion of the meatus*, producing perfect deafness, is curable only when the passage is partially adherent, and then by the employment of the knife or caustic, and afterwards by the use of tents; when the canal, however, is closed from the external opening to the membrane of the tympanum, the case assumes a more serious aspect, demands greater circumspection in the treatment, and after all is generally beyond our reach, in any attempt to remedy the defect. 4. *A faulty shape of the meatus*, in interfering with the natural curve of the auditory passage, by which the sound is duly conducted to the tympanum, will occasion deafness, and this can only be remedied by the use of an acoustic instrument, supplying an artificial curvature, and attached to a conical tube, as an ear-trumpet, by means of which, sounds can be collected, and propagated. The acoustic instrument, invented by Dec-
kers, has been recommended in such a case.

III. *Insects, worms, and other foreign bodies, lodged in the meatus*, have impaired the sense of hearing; it has been conjectured by some authors, that the eggs of small flies, have been deposited, during sleep, and that these eggs have given birth to insects, to the great pain and inconvenience of the individual; this, however, is a circumstance hardly likely to occur, from the bitter and resinous nature of the secreted cerumen, which would destroy any insect that came into contact with it; that flies and worms do occasionally enter the meatus, is certain, but their presence as foreign bodies are the cause of irritation, rather than any motion they are able to exert; children have frequently introduced hard substances into this canal, such as slate-pencil, beads, &c. all of which, as well as insects, may give rise to very unpleasant, and severe symptoms; an acute pain, sometimes convulsions, even paralysis of the side of the face and neck, have succeeded, and when the sufferer is not speedily relieved, ulceration is apt to follow.

The treatment chiefly consists in removing the offending body, which may be done with a pair of small forceps; in order to expose the cavity

of the meatus as clearly as possible, the patient should be brought into a strong light, and the curved passage of the meatus, formed into a right line as far as possible, by pushing the lower part of the ear upwards. The ear should be previously moistened by an injection of olive oil, which alone will frequently expel small insects, and when any hard substance is impacted within the meatus, and cannot be removed without a laceration of the surrounding parts, it should be carefully broken by strong forceps, and the pieces extracted. When ulceration occurs, the most advisable remedy is an emollient poultice.

IV. *Obstruction of the meatus, by hardened wax or cerumen.* This is the most common cause of deafness, and is generally recognized, by the sense of hearing being confused rather than destroyed; a singing (as it is called) in the ear, is complained of, and sounds similar to those occasioned by the rustling of leaves, or the flowing of water, particularly during mastication, or when the sense is directed to some particular object, are experienced. The application of a little warm oil to the ear, and frequent injections of tepid water, readily promote a cure; in some cases, it may be advisable to introduce a small silver scoop, to dislodge the cerumen from the surfaces to which it adheres.

V. *Purulent discharges, in consequence of syphilis, small-pox, measles, &c.* If the suppuration be in the tympanum, the small bones of the ear will probably be discharged, and incurable deafness follow. The meatus auditorius is subject to the attacks of inflammation, when suppuration will occasionally succeed, as in other parts, and the matter will be evacuated either between the auricle and the mastoid process, or into the meatus itself; in the latter instance, from the opening being too small for its discharge, a fungus shoots out, and a fistulous opening is formed; to prevent the pain and inconvenience experienced from the retention of the matter, as well as to prevent exfoliation from the irritation occasioned, it may be necessary to perforate the sinus between the auricle and mastoid process for its free evacuation. In all cases of this nature, topical bleedings and antiphlogistic measures are indicated, at the same time carefully protecting the meatus from cold, by wearing a piece of cotton within it, and frequently injecting warm water into the canal. See *Inflammation of the Ear*.

VI. *Polypous Excrescences*, may be removed either by ligature or the curved bistoury and forceps; these are not frequent. See *Polypi*.

VII. *Herpes of the Meatus.* This affection diminishes the diameter of the passage, by thickening its membrane, or by an inspissation of its secreted matter; it will generally yield to alteratives, and injections of a weak solution of nitrate of silver, or the oxymuriate of mercury, (gr. i. to $\frac{3}{4}$ i. of distilled water) with the application of the ointment of the

nitrate of mercury; when the disease is more than usually obstinate, a seton may be inserted in the neck, or a blister applied behind the ear.

VIII. *Obstructions of the Eustachian tube*, are often the source of deafness, as it is necessary that air should be conveyed through this passage to the cavity of the tympanum, in order to constitute perfect hearing. A degree of deafness often occurs in consequence of a severe cold, when the tube may be plugged up by mucus, but according to Mr. Saunders, the obstruction generally arises from syphilitic ulcers in the throat, or sloughing in cynanche maligna, the deafness coming on when such sores are healed, that is, when the obstruction is complete: the descent of a nasal polypus into the pharynx, and enlarged tonsils, have also been known to close the tube. When this accident has occurred, a crackling and fulness of the membrana tympani, is not experienced on blowing strongly, when the mouth and nose are stopped, and a previous ulceration or disease of the throat, will facilitate the diagnosis. The mode proposed of throwing an injection into the guttural orifice of the canal, can be rarely successful, from the difficulty of the operation, and nearly impossible when the inferior spongy bone is situated near the floor of the orbit; bearing this in mind, Sir A. Cooper first suggested and adopted the plan, of puncturing the membrana tympani, with a view of supplying the tympanum with the air necessary for the propagation of sound; that gentleman introduced an instrument resembling a hydrocele trocar, but curved, into the meatus auditorius externus, and pushed it through the anterior and inferior part of the membrana tympani, a place the most eligible, on account of the situation of the chorda tympani and manubrium of the malleus, parts which should be left uninjured; and not passing the instrument too far, so as to wound the vascular lining of the tympanum; this operation has succeeded in some instances, immediately restoring the sense of hearing; the only difficulty to be apprehended, is the premature closing of the wound, when deafness will re-occur. To prevent such circumstance, a Mr. Buchanan, of Hull, has invented a perforator which *drills* an opening, cutting the fibres of the tympanum across, which, retracting, do not afford so ready a means of closure as in the former case; when the trocar is employed, it is frequently necessary to repeat the operation, making the puncture larger, and sometimes applying caustic to the part, but by the improved plan, this repetition, and the danger of touching so sensitive an organ with an escharotic, may be avoided.

IX. *Diseases of the labyrinth*. Mr. Saunders states, that all the diseases of the internal ear are nervous, their seat being the portio mollis of the seventh pair of nerves, or the surfaces on which its filaments are expanded. In other words, this species of deafness is exactly analogous to amaurosis, and, like that, is often cured by low diet, frequent

vomiting and purging, and restoring the digestive functions by alteratives. (See *Amaurosis*.) The symptoms enumerated by the patient, are noises in the ears, like murmuring of waters, the hissing of a boiling tea-kettle, rustling of leaves, &c. Others complain of a violent pulsation, or beating, which is increased when the vascular action is increased by exertion, or otherwise. Some species of nervous deafness are syphilitic, and may be removed by a course of mercury. Blisters and electricity, as well as issues and setons, in the vicinity of the ears, may be employed. Mr. Cline, in one instance, found the cavity of the tympanum filled up with a caseous matter, instead of the usual limpid fluid, and such a case of course was incurable. Paralysis may also cause deafness. Consult Richerand's *Nosographie Chirurgicale*, tom. ii, p. 122, third edition;—A. Cooper, in *Philosophical Trans.* 1802;—Saunders on *Anatomy and Diseases of the Ear*;—S. Cooper's *Surg. Dict.*—Curtis on the *Ear*;—Rees's *Cyclopædia*, article "Ear."

DELIRIUM (from *deliro*, to rave.) This is the generic term of the different forms of this disease. The sensations are not in relation with external objects, the ideas with present sensations, the judgment with present ideas: the judgment and ideas are involuntary. Ideas furnished by imagination, intrude themselves in crowds, so that their analogy and difference cannot be seen. The sufferer takes a windmill for a man, a hole for a precipice, clouds for cavalry. Unable to command his attention, he is the sport of hallucination; unites incongruous ideas, adopts determinations and language contrary to his own and society's usage. Sometimes he sees his delusion as soon as it is pointed out to him; at others, every thing around him strengthens it. If delirium be stronger than the ordinary influence of the senses, he is not easily undeceived, and becomes irritable. In the forms of delirium called mania, loquacity, carphology, somnambulism, it shows itself in the organs of motion, which are at rest, and in the form of ecstasy. Every organ can act so as to produce delirium: it often follows great excitement of the passions. From acquaintance with all diseases in which delirium appears, we are to seek the cause of its varieties, and the principles of its cure. Its seat is unknown. Some people are delirious under the least febrile action, and it is frequently the immediate precursor to dissolution.

I. Febrile Delirium.—There are few diseases in which cases of this affection does not occur, proportioned to the severity of the other symptoms. It is characterized by a sense of weight over the stomach, great watchfulness, anxiety, unnatural sensibility of the organs of seeing and hearing, vertigo, headache, a ferocious aspect, tremour of the tongue, gnashing of the teeth, and a sudden loss of memory: a change in accustomed habits and gesture, an unbecoming indulgence in improper conversation and attachments, sometimes display an early stage of this

species of delirium. It is most uncertain in its operation on the mental faculties; sometimes inducing a gay and innocent levity, and at others a sombre character, which prompts the sufferer to neglect his person and food, and eventually drives him to madness or suicide. Fevers of a bad and low type, sometimes leave after them a chronic delirium, which also disposes to insanity.

It is remarkable, that a wonderful flow of ideas sometimes attends the delirium of acute diseases; things long forgotten, are again recollected, and the dying man even will be elevated beyond his former intelligence. See the *Observations of Dr. Esquirol*.

II. *Delirium Tremens*; the delirium of drunkards, called by Dr. Armstrong, the delirium of people addicted to strong drink, and in Philadelphia, mania a potu, and mania a tremulencia. This affection is generally induced by too free a use of spirituous liquors; the stomach and digestive organs being thereby debilitated and almost paralyzed, which occasions an exhausted state of the nervous system generally, and a delirious condition of the brain, in which mind and body exhibit equal feebleness, combined with a high degree of irritability, to which the patient often falls a sacrifice in a few days; previous to which, he is worn out with convulsive struggles, succeeded by a cold and general perspiration. The pulse increases in rapidity, and becomes thready, and the twitching of the tendons subsides into a tremor which spreads over the whole body; the countenance is pale and anxious, the patient mutters incessantly, and the delirium is constant, though easily interrupted by questions addressed to him. If before this extremity take place, a sound and refreshing sleep ensue, the irritability subsides, a healthful quiescence succeeds to general commotion, and the mind and body become by degrees re-invigorated. We occasionally find the same list of symptoms in the advanced stages of pneumonia.

Treatment.—The room should be kept quiet, dark, and cool, and every means exerted to soothe the sufferer into tranquillity; the surface of the body should be frequently sponged with cold or tepid water, or even the cold affusion employed, and the appetite tempted by light and savoury food, at the same time administering barley-water, impregnated with mint or lemon, or any other mild diluent beverage. If the patient prove refractory, his motions must be restrained in the gentlest mode, as every degree of violence will but exasperate the disease. Some practitioners have been in the habit of administering large doses of opium, and although in the editor's experience, this plan has been occasionally productive of the best effects, it has not succeeded so generally, as to justify its use in all cases. Other physicians are exceedingly timid in the employment of this drug, contenting themselves with the exhibition of one grain in the twenty-four hours, alleging, that as the system resumes its susceptibility,

its influence will be experienced; but in cases of this nature, it is always prudent to regard the prevailing symptoms, with a view to their abatement, rather than to repose unlimited confidence in any one plan of treatment, and if the irritation be excessive, moderate doses of opium are doubtless indicated. If any alarming determination have fixed upon one organ in particular, topical or general bleeding may be resorted to, while costiveness must be met by laxatives, and a sensation of nausea, with fruitless endeavours to vomit, by an emetic. Bleeding, however, either indiscriminately or extensively, appears to be forbidden, from the want of success attendant upon that practice. The use of the aromatic spirit of ammonia, (*spiritus ammoniæ aromaticus*,) has sometimes been advocated in this affection, in doses of ʒ ss. frequently repeated, on the principle of counter-irritation, and as an antispasmodic; but where life is hanging upon so slight a thread, great caution will always be necessary in the use of so powerful a medicine. Dr. Staughton, in the sixth volume of the *Philadelphia Journal*, says, that in many instances, large quantities of aropy matter, of the consistence of boiled tar, is often brought away by the action of an emetic, which seldom fails to restore the patient; a communication entitled to serious attention. As addenda to other treatment, blisters may be applied on the chest, back, and neck. Several interesting cases of this affection are recorded by Dr. Channing, in the *New England Medical Journal*, No. 6, and also in the seventh volume of the *Eclectic Repertory*.

DEMENTIA; (from *de* and *mens*, without mind.) The insanity of old and decayed intellect. See *Mania*.

DENTITION, or **TEETHING**.—(*Dentitio*, from *dentio*, to breed teeth.) This process is attended with more danger than any disease to which children are liable. It begins generally from the fifth to the eighth month, though sometimes much later, and even at one or two years. The two lower incisors first appear—the two upper shortly after; four molars succeed, then the canini, and lastly, the eye-teeth, the most difficult of the whole. These are the usual number of the first teeth, except in a few instances, where there are two molars in each jaw, making twenty in all. In healthy children, dentition is mostly easy, and completed by the sixteenth month; but in weakly and unhealthy children, the teeth frequently do not appear in the regular order, are slower in their arrival, and longer in their completion. The symptoms attending the first cutting, often indicate those which will follow subsequently. At the age of six or seven years, children lose their first set of teeth; this is immediately followed by the second and last, with the exception of one in each jaw, which are not cut until about the age of twenty, and are called the *dentēs sapientiæ*. The second set varies in number, from twenty-eight to thirty-two, including the wise teeth.

Symptoms.—Dentition is preceded by drivelling, swelling, spreading, and inflammation of the gums; pain denoted by the child thrusting its fingers in its mouth; redness of cheeks: sometimes, also, we have eruptions on the face; green stools, mixed with mucus; watchfulness and peevishness. The child starts during its sleep, and is often convulsed. To these may be added, in bad cases, much fever, cough, difficulty in breathing, hydrocephalus, &c. which frequently prove fatal.

Treatment.—If the gums be swelled, hard, or inflamed, exciting much irritation, they should be lanced, the scarification repeated frequently, until the tooth is entirely through. The stomach and bowels may be preserved in good order by the use of emetics and purgatives; acidity obviated by the chalk mixture, or magnesia; flatulency by carminatives; aphthæ of the mouth may be relieved by a mixture of honey with borax or alum; and startings and convulsions, by opiates and blisters behind the ears. When much fever is present, with pain and irritation, bleeding from the jugulars, or leeches applied behind the ears, will be useful; also sudorifics, the warm bath, and sinapisms: a spontaneous purging is salutary, and should not be checked. The practice of giving children coral, and other hard substances to bite upon, is injurious, from their tendency to irritate and inflame the parts. Pure air, wholesome food, and good nursing, contribute in the highest degree to the safety of teething.—Consult Drs. Armstrong and Underwood on Diseases of Children.

DEOBSTRUENTS.—(Deobstruens, from *de* and *obstruo*, to obstruct;) a term chiefly applied to those medicines which tend to a removal of uterine obstructions. See *Emmenagogue*.

DEPRESSION OF CATARACT. See *Eye*.

DEPRESSION OF SCULL. See *Head, Injuries of*.

DETERGENTS; from *detergo*, to wipe away. If any applications deserve this name, they are those which excite a healthy action in the part to which they are applied; such as preparations of the sub-acetate of copper, zinc, alum, the tincture of myrrh, &c.

In the old practice of medicine, the term denoted those medicines which were supposed to cleanse and remove such viscid humours as adhere to and obstruct the vessels.

DIABETES; (from *δια*, through, and *βαίω*, to pass.) This disease is described as consisting of two species:

1. *Diabetes Mellitus*; when the urine is of the smell, colour, and taste of honey. 2. *Diabetes Insipidus*; when the urine is limpid, very copious, and not sweet.

Symptoms.—Languor and disinclination to motion; debility; continued thirst, and dryness of the skin; voracious appetite; disorder of the stomach; sense of weight in the kidneys, and pain in the ureters; costiveness, depression of spirits, swelling of the legs, emaciation, hectic

fever, together with an immense increase of the urine, at first insipid, but soon becoming so sweet that saccharine matter may be extracted from it. The increase of urine is so great, that from twenty to thirty pints have been evacuated daily; a quantity far exceeding the weight of the whole food taken into the body. To account for this superabundant quantity of fluid, it is necessary to suppose that moisture is absorbed from the atmosphere by the skin and lungs. Diabetes generally appears in those constitutions which are debilitated by the abuse of spirituous liquors, by hysteria, dyspepsia, by the improper use of diuretics, by excess in venery, poor diet, depressoing passions, exposure to cold, hereditary idiosyncrasy. The *proximate cause* is involved in much obscurity, and various opinions respecting it are entertained: Dr. Richter, of the Gottingen University, supposed it to be of a spasmodic nature, existing in the kidneys. Drs. Cullen, Dobson, and Rollo, believe the fault to exist in the assimilatory process of digestion and chylication, by which a quantity of saccharine matter is formed in the stomach, particularly when vegetable food has been eaten, and conveyed to the kidneys by the sanguiferous system. Others insist that it depends on a disordered action of the kidneys themselves. The treatment, however, founded on Dr. Rollo's theory, has proved the most successful. The abatement of thirst and voracious appetite; the returning perspiration, with regularity of the bowels; the diminution of urine in quantity, and melliferous smell; loss of dyspeptic symptoms; recovery of bodily strength and mental vigour, are favourable signs: while the reverse indicate a fatal termination.

Treatment.—The indications observed are: 1. To divert the unusual discharge from the kidneys to other channels, by the use of diaphoretics, warm bath, and warm clothing; by removing to a warm climate; by blisters applied to the region of the kidneys; by keeping the bowels open. 2. To restore the tone of the parts by astringents and tonics; as zinc, alum, kino, catechu, sulphuric and nitric acids, myrrh, cinchona, chalybeates, cold bathing. Large doses of opium have in some instances been found very useful, and also the internal exhibition of cantharides, as well as frictions. If the disease be symptomatic of hysteria, hypochondriasis, or asthma, these demand primary treatment.

Dr. Rollo's practice is in conformity with his theory; his indications, therefore, are, to destroy the saccharine process going on in the stomach; to promote a healthy assimilation; to prevent a supposed increased absorption by the surface; to diminish the increased action, and to change the supposed disorder of the kidneys. These he accomplishes, by giving a diet of animal food; prohibiting every species of vegetable aliment, from which sugar may be extracted; by the administration of hepatized ammonia, (ammonia hydrosulphuretum,) in doses of three or four drops, thrice a day, gradually increased until it produces giddiness; by anoint-

ing the skin with lard, and avoiding exercise; by antimonial wine and opium at bed-time; by forming an ulceration about an inch in diameter, over each kidney, and by keeping the bowels open with aloes and soap. Mr. Earnest, of the Sheffield Infirmary, has been enabled to cure this disease, principally with the use of nitric acid. Mr. Watt, of Glasgow, has been successful also, by large and repeated bleedings, supposing inflammation its immediate cause.—Consult Sydenham's Works;—Latham and Rollo on Diabetes;—Watt's Cases of Baillie in the Trans. of a Soc. for the Improvement of Med. and Chir. Knowledge, vol. ii.;—Bateman, in Rees's Cyclopædia;—Parr's Med. Dict.;—Mott, in Am. Med. and Philo. Reg. vol. i.

DIAPHORETICS; (from *διαφορεω*, to carry through.) This name is applied to those medicines which increase the discharge by the skin; the class comprehends five orders:

1. *Pungent Diaphoretics*; as the volatile salts and essential oils, adapted to the aged, in cases where other diaphoretics, from repetition, have lost their power in the system; and where the stomach refuses to receive a large quantity of medicine.

2. *Calefacient Diaphoretics*; as serpentaria, contrayerva, guaiacum, &c., administered where the circulation is low and languid.

3. *Stimulant Diaphoretics*; as antimonial and mercurial preparations, suited for the vigorous and plethoric.

4. *Antispasmodic Diaphoretics*; as opium, musk, and camphor, which are given to promote a diaphoresis, when the momentum of the circulation is increased.

5. *Diluent Diaphoretics*; as water, whey, flax-seed tea, &c. which are best calculated for that habit in which a predisposition to sweating is wanted, and in which no diaphoresis takes place, although there be evident causes to produce it.

DIAPHRAGMITIS; (from *διαφραγμα*, the diaphragm.) Inflammation of the diaphragm. See *Inflammation*.

DIARRHŒA; (from *διαρρῶω*, to flow through.) A purging. This is a genus of disease divided into the following species.

1. *D. Crapulosa*, or the *feculent diarrhœa*; arising from a surfeit in eating or drinking, and distinguished by copious and watery stools.

2. *D. Biliosa*; or that occasioned by an increased secretion of bile, when the fæces are thin and yellow.

3. *D. Mucōsa*; so called from the quantity of slimy matter voided.

4. *D. Hepatirrhœa*, or *hepatic diarrhœa*; in which there is a quantity of serous matter discharged, somewhat resembling the washings of flesh; the liver being primarily affected.

5. *D. Lienteria*; when the food passes unchanged from the bowels.

6. *D. Cæliaca*, or the *cæliac passion*; when the excrement is voided in the form of a white substance resembling chyle.

7. *D. Verminosa*, when it is occasioned by the presence of worms in the alimentary canal.

However wide these distinctions of authors may appear, they are in reality not of much consequence in practice, and may in fact be reduced within narrower limits, by referring *Diarrhæa* to one of these direct causes; stimulating food or medicine, increasing the irritability of the intestinal canal, and hence producing an increased secretion from the vessels on its internal surface; a particular state of the atmosphere, mental emotion, and a sympathy with diseases in other parts of the body.

Diarrhæa, when arising from stimulating or acrid ingesta, is sometimes accompanied with the common symptoms of dyspepsia, and not unfrequently with severe vomiting; it is attended with urgent griping pains of the bowels, which are however relieved for the time by a copious and watery evacuation; it commences suddenly, and in most cases, however harassing, carries with it its own cure. When *diarrhæa* is occasioned by atmospheric influence, it is the result of one of those peculiar agencies that are capable of being so powerfully directed, as in cases of cholera and fever, to the functions of the intestinal canal; this variety of *diarrhæa* chiefly prevails in the autumnal months, and after any remarkable change in the weather, such as the breaking up of a long frost, and perhaps in this latter case we are more justifiable in accounting for its attack, by viewing the sudden atmospherical change as a predisposing or accessory cause, augmenting the irritability of the intestines, and rendering them susceptible to stimuli, which under other circumstances would have produced no inconvenient effect, than warranted in considering such a change as necessarily producing a morbid condition either of their structure or functions. We may, in fact, conclude with Dr. Gregory, that a rapid transition of temperature, operates like an accidental exposure to cold, by altering the distribution of the fluids, and determining them in an increased quantity upon the mucous membrane of the intestines. The effects of this species of *diarrhæa* are the same as the former variety, and as frequently cease, after a troublesome continuance of a few days, or it may be even a few weeks. The *diarrhæa* occasionally consequent upon mental emotion, especially anxiety of mind arising from the cares of business, fatigue, late hours, irregular habits and afflicting events, or occurring as symptomatic of other diseases with which the intestines sympathize, is frequently and strikingly displayed; under the first circumstances, an abatement of the cause of distress, naturally presents the readiest cure, but in the latter, especially in the dentition of infants, ulceration of the lungs, suppressed cutaneous eruptions, and hepatic affections, it too often assumes a character communicated to it by the disease of

which it is but a symptom, and only appears in a colliquative form, frequently alternating with diaphoresis, to terminate the life of the sufferer. In whatever manner diarrhœa may be occasioned, it is very often a severe and troublesome complaint, frequently recurring after it appears to be effectually suppressed, and giving rise, if of long continuance, to loss of appetite, languor, lassitude, great debility, and emaciation; the weakness induced by a severe purging lasting only twenty-four hours, is often extreme, and in children and old people alarming. Dr. Baillie in the fifth volume of the *Transactions of the London College of Physicians*, describes a peculiar species of chronic diarrhœa, occasionally met with in elderly persons, and in those who have resided in warm climates, or suffered from diseases of the liver; it consists in an evacuation of a matter resembling a mixture of lime and water, and frothy on the surface, which occurs upon the slightest disturbance either to mind or body, is little under the controul of medicine, and ultimately wears out the constitution.

Treatment.—This must be regulated by a consideration of the cause of the diarrhœa, the age, constitution, and previous health of the patient, as well as the manner of its invasion, duration, and effects upon the general habit: when it attacks young persons of a robust habit, it may safely be permitted to wear itself out, always remembering that where the disease is sufficiently active to effect its own cure, it will do so speedily; if the complaint continues for more than twenty-four hours, some latent cause must exist, which it is necessary to obviate by medicines; where the diarrhœa is occasioned by improper ingesta, the first necessary measure is the removal of the offending matter, and this may be accomplished by the action of an emetic, followed by a brisk cathartic a few hours afterwards; calomel and ipecacuanha, calomel with rhubarb, or rhubarb with the tincture or confection of opium if much tenesmus prevails, may be given either after the emetic, or where it has not been judged necessary to administer it; if the case resists these medicines, small doses of the chalk mixture with the tincture of catechu, the compound powder of kino, and the tincture of opium, may be exhibited, and in very long and unyielding examples, the camphor mixture with nitrous acid and opium,* as recommended by Mr. Hope, of Edinburgh, or the sulphates of zinc or copper (one grain of the former, and half a grain of the latter, twice a day, gradually increased if necessary,) joined with opium, as advised by Dr. Elliotson, of London. The same plan may be pursued, with occasional variations, as peculiar symptoms present themselves, in all

* R. Acidii Nitrosi, dr. i.; Misturæ Camphoræ, oz. viij; Tincturæ Opii, gutt. xl; Cochlearia magna iv. quarta quaque hora sumend.—See the eighty-eighth volume of Edinburgh Medical Journal.

cases of diarrhœa, where the regular action of the intestinal canal has been disturbed by improper aliment. It is not sufficient, however, to be contented with the immediate effect produced by any of these medicines, nor will they, in many cases, establish a lasting benefit, without some perseverance in their use; it may indeed occasionally be necessary to administer an aromatic astringent draught after every liquid stool, and as diarrhœa will always leave the bowels morbidly irritable, and predispose them to a recurrence from the slightest causes, it is prudent to continue for a short time after its termination, the employment of demulcent mixtures containing a small quantity of the tincture of opium. Starch injections, with a few drops of laudanum, are sometimes of essential service in the most severe cases.

When diarrhœa occurs in consequence of cold or variable weather, the same rules as are already laid down, may be adopted with propriety; but the possibility of its being connected with any inflammatory condition of the mucous membrane of the intestines, must always be borne in mind, and the first symptom promptly met by the antiphlogistic treatment, bleeding, either general or topical, if necessary, fomentations, &c. The chronic form of the affection, which is so apt to prevail in some habits, will experience great relief from the application of leeches to the verge of the anus. In all cases, the diet is a most important consideration; it should consist of those substances, which are light and easy of digestion in themselves, yet contain a considerable quantity of nourishment; such as milk, rice, arrow-root, tapioca, sago, jelly, beef tea, broth, &c., avoiding all malt liquor in favour of weak brandy and water, wine and water, or barley water, and this abstinence should be persevered in, until the predisposition to diarrhœa is completely thrown off. In that peculiar form described by Dr. Baillie, as attacking persons who have lived in warm climates, or who have been victims to liver complaint, strychnine, or the active principle of *nux vomica*, has been tried with success in doses of 1-12th of a grain, twice a day; the combination of the sulphate of iron and columbo root, with occasional doses of hyoseyamus or opium, has also been useful. When diarrhœa is colliquative, or occurring in consequence of disease in distant parts of the body, it cannot be treated separately with any prospect of advantage; it may be partially restrained, by the administration of opiates and demulcents, but all hopes of its perfect cure must depend upon the power we are able to exert over the disease, from the effects of which it proceeds.

When a diarrhœa arises in pregnant women, it must be immediately arrested, lest it should produce abortion. But when it occurs in fevers and other disorders, it generally proves critical, and should then be by no means checked, unless very violent, and then very cautiously. The

same remark equally applies in cases of dentition, or in repelled eruptions. The ordinary diarrhoea in children may be treated with gentle emetics and purges, particularly if the stools are green and slimy, followed by absorbents and astringents, making use of light nutritive diet, keeping the child warm, &c. Consult Armstrong, on Diseases of Children;—Lind on Hot Climates;—Baillie in Med. Trans. of the Col. of Physicians, London;—Rush Med. Obs. and Inq.;—Man on Cholera Infantum;—Gorham in New Eng. Med. Jour. vol. ii.

DIGESTIVES; (from *digero*, to dissolve.) Applications which are supposed to promote suppuration and produce healthy pus in a wound; such as the ointments prepared from yellow wax, gum elemi, turpentine, yellow resin, warm poultices, fomentations, &c.

DILUENTS; (from *diluo*, to wash away.) Those substances which are imagined to increase the proportion of fluid in the blood; water is properly speaking the only diluent, although various additions are given to it, to impart a pleasant flavour or a demulcent quality. Diluents are merely secondary remedies, and are chiefly employed to promote the action of diuretics, or to favour the operation of diaphoretics, of which last class they form an order.

DIPLOPIA; (from *διπλος*, double, and *οπτομαι*, to see.) *Visus Duplicatus*; double sight. See *Eye*.

DIRT-EATING. See *Cachexia*.

DISCUTIENTS; (from *discutio*, to shake in pieces.) Applications which tend to resolve and disperse swelling and extravasations by promoting the action of the absorbents, such as the different liniments and ointments containing mercury, soap-plasters, camphor, friction, electricity, &c.

DISLOCATIONS; (from *disloco*, to put out of place.) Luxations take place in consequence of blows, falls, or other violence, sufficient to remove the articulatory process of a bone, from its natural cavity. This species of injury meets with distinctive appellations, according to the peculiar character of the accident; a dislocation is simple, when no external wound communicates with the joint; compound, where the contrary is the fact; complete, when the head of the bone is thrown entirely from the socket, and incomplete, when it is only partially removed from its proper situation, as frequently occurs in the ginglymoidal or hinge joints of the knee, elbow, wrist, &c. The distinctions of ancient and recent dislocations are too apparent to need any remark. Desault treats of primitive, and consecutive dislocations, the former occurring when the head of the bone remains in the situation into which it was first thrown, and the latter when it is removed thence, by the action of muscles, farther violence, or the progress of disease.

The general symptoms of dislocation, are a loss of power in the

functions of the joint, a displacement of the head of the bone from its natural situation, an acute or dull pain from its pressure upon the surrounding soft parts or neighbouring nerves, the frequent occurrence of paralysis below the seat of injury; in consequence, a shortened, lengthened, or distorted limb, and a want of fulness in the situation the articulating and dislocated extremity has abandoned.

The danger of a dislocation depends upon its simple or compound character; the first is rarely attended with alarming symptoms, but the second, from the severe accompanying constitutional derangement, is occasionally fatal; the causes of dislocation are however very different; for instance, a ginglymoid joint requires a greater force for luxation than an orbicular one, in which the muscles have a considerable share in effecting the accident, while in the former, direct and greater violence is required; a laxity of fibre, a relaxation of the ligaments of a joint, a loss of muscular power, by which the original equality of pressure is lessened, and ulcerative absorption, are all likewise causes, as well as violence, in its production.

The reduction is always more difficult in the orbicular than in the ginglymoid joints, on account of the superior resistance of the surrounding muscles, although the more complex construction of the latter, renders detection of the injury more difficult.

The treatment consists in restoring the part displaced to its proper situation, and to retain it there by bandages and splints if necessary, until the muscles have recovered their former power, after the violence and fatigue to which they have been subjected; this is sufficiently easy to perform in most cases of simple dislocation, but where the injury is of a compound nature, all the skill and judgment of the surgeon is required in the necessary treatment; in some cases the laceration of the soft parts may be so extensive, or a fracture may in addition to the luxation so materially increase the difficulties of the case, that amputation is imperatively required to save the life of the sufferer. Where the injury is not of so fearful a character, the bone must be immediately reduced, and the edges of the wound approximated as nearly as may be, by adhesive plaster, and adopting precisely the same plan of procedure, as described under the article *Compound Fracture*, to which the reader is referred.

In treating of reduction, we shall, for the purpose of avoiding repetition, describe the modes applicable to each dislocation, instead of alluding to it distinctly, and at the same time point out the particular causes and symptoms of the different luxations.

Particular dislocations of the lower Jaw. This bone is subject to two species of dislocation—the *complete* and the *partial*.

The complete luxation is produced by a blow upon the chin while the

mouth is widely opened, by introducing any large substance within the mouth, or by a spasmodic action of the muscles during the act of yawning; it is easily recognized, by the open state of the mouth, and the inability of the sufferer to close it, by the projection of the cheeks from the advance of the coronoid processes towards the buccinator muscles, and by a depression anterior to each meatus auditorius, from the escape of these processes from their situation; the under jaw extends beyond the upper—speech and deglutition are greatly interfered with, and the saliva dribbles over the chin; the pain is generally acute, from pressure on the deep temporal nerves. In this accident, the condyles of the jaw are advanced into the spaces, between the zygomatic arches and the surfaces of the temporal bones.

For the purpose of reduction, the surgeon, having defended his thumbs with strong gloves, or folds of linen, must pass them into the mouth, as far as possible, along the grinding teeth, placing his fingers under the chin and base of the jaw; then, depressing the teeth with his thumbs, he elevates the chin, thus disengaging the condyles from their position, when the muscles attached to the bone will at once draw them back into the articular cavities, and with so much force as to injure the thumbs of the operator, if they were left unguarded. After the reduction, the jaw should be supported for a few days with a four-tailed bandage, and mastication avoided as much as possible by the sole use of broths, jellies, &c.

Partial dislocation of the Jaw. Here, the condyloid process of one side only, advances under the zygomatic arch; it is produced generally by a blow upon that side, when the mouth is opened, and is detected by the chin being thrown to the opposite side, and the incisores teeth advanced in the same direction upon the upper jaw, the mouth being half open. The same plan of reduction may be pursued as in a case of complete dislocation, raising the chin, and depressing the molares, upon one side only.

A subluxation of the jaw will sometimes occur from a relaxation of the ligaments, generally happening to young women of weak and sickly habits; in such cases the bone quits the interarticular cartilage of the temporal cavity, slipping before its edge, and forming a lock of the jaw, the mouth, of course, remaining slightly open: to relieve the patient from this inconvenience, force must be applied directly downwards, so as to separate the jaw from the temporal bone, and allow the cartilage to be replaced, and the recurrence of the accident guarded against immediately by bandages, as before directed, and subsequently by the administration of tonics and the employment of the shower bath, in order to brace the system, and enable it to throw off the disposition.

Dislocation of the Head from the first Vertebra, or Atlas. This can-

not take place from accident without proving immediately fatal, by the compression and injury of the spinal marrow; occasional instances have occurred where this dislocation was occasioned by the ravages of disease; these spontaneous displacements may depend upon caries and scrophulous disease of the articular surfaces, upon an exostosis of the transverse processes of the atlas, or a bony tumour growing from the neighbouring portion of the os occipitis, or petrous portion of the temporal bone. By these causes the anterior or posterior arch, or one of the sides of the atlas, has been made to intercept a third, the half, and even two thirds of the diameter of the foramen magnum. Notwithstanding the very remarkable constriction of the medulla spinalis, thus occasioned, it is noticed by Boyer, that life may be carried on, and the nutritive functions performed sufficiently well to afford time enough, either for the exostoses to attain a large size, or for the ankylosis, binding together the head and most of the cervical vertebræ, to acquire great solidity.

The treatment adopted, has been in accordance with the nature of the disease from whence the accident originated; blisters, setons and issues have been proposed and tried, but with little or no effect; an evil of this magnitude allows but a trifling and useless display of skill.

Dislocation of the first cervical Vertebra from the second. This accident may be occasioned by a fall on the head from a high place, the fall of a heavy body against the back of the neck, a violent twist of the neck, standing upon the head, or by the rash and foolish custom of lifting children up by the head &c., and is without remedy, instant death taking place after its occurrence.

Dislocations of the Vertebrae generally. Accidents bearing this denomination are really fractures of the vertebræ, with displacement of the bones; the only true dislocations of the vertebræ admitted by Sir A. Cooper, are those of the first and second cervical. See *Fractures of the Vertebrae*.

Dislocations of the Ribs. It has been supposed that these accidents could not occur, and that those cases described as such were really fractures at the necks of the bones; they have however been alluded to by Ambrose Pare, Heister, and other ancient practitioners, and in the works of Mr. Charles Bell, we have an account where all the ribs were said to have been dislocated from their cartilages, from pressure between the beam of a mill and the wall.

If we were able to detect the accident, and it would probably be at the vertebral extremity, an indentation would be presented, near the transverse process of the vertebræ. Its reduction might be effected by pressing on the anterior end of the bone, until we restored it to its place; afterwards carrying a long roller round the body several times.

to prevent a displacement, and confine the necessary compress to the seat of injury; if the accident took place at the sternal extremity, which is hardly possible, on account of the cartilaginous termination, the same rules would govern the practice. Venesection, purging, &c. might be necessary to prevent the accession of fever.

Dislocations of the Bones of the Pelvis.—These require excessive violence for their production; still experience proves that the os sacrum may be driven forwards towards the interior of the pelvis; the ossa ilium may be displaced forwards and upwards, and the bones of the pubes may be totally separated at the symphysis; the general causes are, falls from a great height, the sacrum being struck by a heavy body, and the pressure of the pelvis, between a wall or a post and the wheel of a carriage or wagon; the severity of these circumstances is generally destructive of life, from the accompanying injury to vital parts in the vicinity; and, even when death is not the immediate result, it is only delayed, in most instances, for a short period, until the suppurative process sets in from the mischief experienced in the soft parts; in fact, the economy of life is so deranged by an accident of this tremendous nature, as to forbid the encouragement of one rational hope of a cure. As Sir A. Cooper ably remarks, “some of these cases are liable to be mistaken for dislocations of the thigh;” “when,” says this gentleman, “a fracture of the os innominatum happens through the acetabulum, the head of the femur is drawn upwards, and the trochanter somewhat forwards, so that the leg is shortened, and the knee and foot are turned inwards; such a case therefore may be readily mistaken. If the os innominatum be disjoined from the sacrum, and the pubes and ischium broken, the limb is slightly shorter than the other; but the knee and foot are not turned inwards. These accidents may in general be detected by a crepitus perceived in the motion of the thigh, when the surgeon applies his hand to the crista of the ilium; and there is greater motion than in a dislocation of the thigh.”

The Os Coccygis is liable to dislocation from its connection with the sacrum, inwards by external violence, and outwards from hard labours. It causes pain, retention of the fæces, tenesmus, inflammation, and sometimes suppuration, if neglected. It is easily ascertained by passing one forefinger into the rectum, and with the other making examination outward. It can at the same time be reduced by pressing the bone inwards if it be thrown outwards, and the reverse if it be the contrary accident, afterwards supporting the pelvis with soap plaster and a T bandage, and administering daily injections, in order to prevent the slightest straining in voiding the fæces.

Dislocations of the upper extremity.—I. *Of the Clavicle.*—This bone is subject to luxations, both at its acromial, and sternal extremity, the for-

ner of which are considered the most frequent by Sir A. Cooper, although the experience of most surgeons, would probably contradict the assertion.*

The Acromial Dislocation is generally occasioned by a fall of extreme violence upon the shoulders, by which the scapula is forced inwards; the appearances are, a depression of the shoulder, when compared with the other; the nearer approach of the shoulder to the sternum, and the detection of the extremity of the clavicle over the acromion, instead of being joined to it; when the shoulders are drawn back, the point of the clavicle falls into its place, and returns again above the clavicle when the shoulders are let go; much pain is also experienced when the protuberance occasioned by the head of the clavicle is pressed. In such a dislocation, the capsular ligament, and the external ligament from the coracoid process of the scapula to the clavicle are necessarily torn through, and the internal ligament is also ruptured when the dislocation is complete.

Treatment.—This is exceedingly simple; nothing more is necessary for the surgeon to place his knee between the shoulder of the patient, and to draw the arms backwards and upwards, to procure the return of the bone into its socket; to retain it there, a thick cushion is placed in each axilla, and a clavicle bandage applied, its straps sufficiently broad to press upon the clavicle, scapula, and the os humeri; the shoulder should be suspended in a sling, in order to support the scapula as much as possible.

It is difficult to imagine the possibility of a dislocation of the acromial end of the clavicle in any other direction; the position and size of the acromion, appear to present a bar to a luxation of the bone, under that process. The dislocation of the sternal end of the clavicle may take place in two ways, either *forwards* or *backwards*.

The dislocation forwards is usually occasioned by a person falling upon the shoulder, when the blow forces the clavicle forwards and inwards, projecting its extremity upon the sternum; or it may arise from a fall upon the elbow, when separated from the side, when nearly the same effect upon the clavicle is produced; the detection of this accident requires no great skill; the point of the clavicle is visible over the sternum, and is elevated or depressed, according to the motion of the arm in the act of lifting or raising it; when the shoulders are drawn back, the dislocation disappears, to recur again when they are released from the hands of the surgeon; the part is also painful, and all motions of the arm are difficult.

As to the cases of dislocations of the clavicle, the editor has certainly remarked that the acromial luxation is very rare in proportion to the sternal one, which is commonly observed in the wards of a hospital.

Treatment.—Draw back the shoulders, when the end of the bone will drop into its place, apply a compress to the point of the dislocation, put a pad into the axilla, and secure the whole with a clavicle bandage, supporting the arm for some time afterwards with a sling.

The *dislocation backwards* can hardly happen from violence, or at least without so much force as to comminute the bones; it is generally the result of a deformity of the spine, occasioning an advance of the scapula, when the end of the clavicle glides beneath the sternum, from a want of room between that bone and the scapula; this effect of spinal deformity may occasion excessive distress by pressure upon the œsophagus, and render the operation necessary, of removing the end of the bone; this was actually accomplished by Mr. Davie, of Suffolk, in England, and with complete success.

Dislocations of the Os Humeri may occur, first, downwards and backwards, usually called the dislocation into the axilla; the bone in such case, resting upon the inner side of the inferior costa of the scapula. The signs are a hollow below the acromion, a want of the usual roundness of the shoulder, from the deltoid being dragged down with the head of the bone; the arm is longer than the other, and the elbow can, with difficulty, be made to touch the side, from the pain occasioned by the head of the bone pressing on the nerves in the axilla; the patient generally supports the arm with his other hand to prevent such pressure. The head of the bone can be felt in the axilla if the elbow be considerably removed from the side. The muscular effort being lost, the arm cannot be raised to the head; rotation is destroyed, but motion forwards and backwards, from the side, preserved.

In old people, however, the relaxed state of the muscles permits of more motion, and even allows the arm to be carried to the head by the surgeon. A slight crepitus may sometimes be distinguished on motion, arising from inflammatory effusion, and from the escape of synovia, but this soon ceases on a continuance of motion, and it is never so distinct as in cases of fracture. The central axis of the arm is changed, for the central line runs into the axilla. A numbness of the fingers frequently occurs from pressure on the nerves of the axillary plexus.

Extravasation of blood and tension often render the accident difficult of detection, but in thin persons, and in advanced age, it is much more easy to discover than in young and corpulent individuals.

The causes are, generally, falls on the hand, while the arm is raised above a horizontal line, by which the head of the bone is thrown downwards; also by a fall upon the elbow, when the arm is raised from the side, but still more frequently, by a fall directly upon the shoulder on some uneven surface, by which the head of the bone is driven downwards, whilst the muscles are ill-prepared to resist the force of the

blow. When the arm has been once dislocated, the accident is liable to recur.

Reduction.—The patient being placed in a recumbent posture, on the edge of a table or sofa, a wetted roller is bound round the arm immediately above the elbow, upon which a handkerchief should be tied; then, with one foot resting on the floor, the surgeon separates the elbow from the side, and places the heel of his other foot in the axilla: the arm is now drawn steadily for three or four minutes, when, if the accident be recent, the reduction is generally accomplished; if more force be required, a long towel may be used in lieu of the handkerchief. The forearm should be kept at right angles with the humerus, as it diminishes the resistance by relaxing the biceps muscle.

Where the accident is of some days duration, another means must be resorted to. The patient should be placed in a chair, and the scapula fixed (which is the principal object) by means of a bandage, allowing the arm to pass through it, (a girt buckled at the top of the acromion, so as to raise the bandage high in the axilla, is used in the English hospitals) a wet roller must then be passed round the arm, just above the elbow, and on this, a strong worsted tape fastened; the arm is then raised at right angles with the body, and, if there be much difficulty in the reduction, above the horizontal line, so as to relax the deltoid and supra-spinatus muscles. Two persons should then, *slowly* and *steadily* draw from the bandage fixed to the arm, and two from the scapula bandage, and after the extension has been kept up for a few minutes, the surgeon places his knee in the axilla, resting his foot on the chair on which the patient sits; then raising the knee, and placing the right hand upon the acromion, he pushes it downwards and inwards, when the head of the bone will return to its socket; a gentle rotatory motion, during the extension, diminishing the opposition of the muscles.

It is advisable to have recourse to the pulleys, only when other means of reduction have been unsuccessful, which is frequently the case, when a considerable time has elapsed since the accident; even then, they are used, not with a view of employing a greater force, but to obtain a gradual and equal power. For the reduction by these means, the patient sits between two staples, screwed in the wainscot on each side of him, with the bandages applied as in the former instances; the surgeon should then draw the pulley, first, gently and steadily, until the patient complains of pain, when it may be left at that point of extension for a short season, at the same time endeavouring to divert his mind from the subject; force may soon again be applied, until pain is again complained of, and so on, for, perhaps a quarter of an hour, gradually increasing the extension, and slightly rotating the limb. When all the proper extension is applied, the string of the pulley may be resigned to

an assistant, whilst the surgeon, putting his knee in the axilla, and resting his foot on the chair, raises and gently pushes back the head of the bone towards the glenoid cavity; when the bone passes into the socket, generally without the snap heard at other reductions, although both surgeon and patient are directly aware of the fact.

The patient may, if necessary, be bled to syncope, and take gr. 1 antim. tartarizati, every ten minutes, until faintness is produced; a warm bath is also a valuable auxiliary. Giving a patient a heavy weight to support in his hand as long as he can hold it, is likewise an easy mode of fatiguing the muscles, and thus diminishing their power of resistance before extension is commenced.

A small cushion should be placed in the axilla after reduction, and then fixed by a bandage, supporting the arm by a sling, not separating it too far from the side.

In recent dislocations, in delicate females, or old and emaciated persons, another mode of reduction is sometimes accomplished. The patient being in a low chair, the luxated arm must be separated so far from the side as to admit the knee of the surgeon into the axilla; resting the foot upon the side of the chair, he places one hand on the humerus, just above the condyles, and the other on the acromion, pulling down the arm over the knee, thus (and in many cases easily,) reducing the dislocation.

Secondly,—*Dislocation forwards*, behind the pectoral and below the middle of the clavicle. The signs are more distinctly marked than in the former accident; the acromion is more pointed, and the hollow below it, from the depression of the deltoid, more considerable.

The head of the humerus can be readily felt, and even seen in thin persons, just below the clavicle, and, on rotation, the protuberance is very visible. The coracoid process is placed on the outer side of the head of the bone, which is thus thrown between the scapula and sternum, covered by the pectoral muscle; the arm is somewhat shortened, and the elbow thrown more from the side, and further back than in the previous dislocation. The axis of the limb runs inwards towards the middle of the clavicle.

The pain is slighter than in the first dislocation, because the nerves are less compressed, while the motion of the joint is more affected, the head of the bone becoming fixed by the coracoid process and neck of the scapula on the outside, and by the clavicle above, while the supra and infra spinati and teres minor muscles being on the stretch, confine all its motions inwards and backwards; thus the clavicle prevents it from being brought forwards, the coracoid process, outwards, and backwards, it is confined by the resistance of the muscles just named.

The points of diagnosis are, the head of the bone being below the

clavicle, and the rotation of the arm giving motion to it in that situation, the elbow separated from the side and thrown backwards.

As in the former case, the reduction is effected by placing the foot in the axilla, and extending the arm, remembering that the foot is required to press upon the *head of the bone*, with the arm drawn *obliquely downwards*, and a little backwards; pulleys may be used, if necessary, with the same caution, and the usual measures for relaxing the muscles, taken, as before described. Extension must be kept up, until the head of the humerus is drawn below the level of the coracoid process, when the surgeon should press the head of the bone backwards, at the same time putting the arm forwards from the elbow.

Third,—*Dislocation on the Dorsum Scapulae* is a rare accident, and is produced by the action of the *teres major* and *latissimus dorsi* muscles on the bone, while its head is forced over the margin of the glenoid cavity, by a fall upon the hand, elbow, or shoulder. In this accident, the head of the bone is thrown upon the posterior surface of the inferior costa of the scapula; the protuberance is immediately detected, resting below the spine of that bone, and is especially visible when the arm is rotated: the motions of the limb are impaired, but not to the same extent as in the other states of luxation; a hollow and puckering of the parts just below the acromion may be observed, the elbow is strongly inclined towards the thorax, and the pectoral muscle, tense; a reduction may take place by the bandages being applied, and extension made in the same manner as in former cases, the bone generally slipping into its cavity with a loud snap.

The arm should be elevated and rotated outwards, so as to roll the head of the humerus towards the axilla, at the same time bringing the arm down in a horizontal position, and applying an extending force, making also a pressure on the acromion.

Fourth,—*Partial Dislocation*. The head of the humerus may be sometimes drawn forwards against the coracoid process, when a depression opposite the back of the shoulder joint, and the posterior half of the glenoid cavity, perceptible from the advance of the head of the bone, and the protuberance occasioned by the situation of the bone on the coracoid process, will explain the nature of the accident. The axis of the arm is thrown inwards and forwards; the elevation of the limb is prevented by the head of the humerus striking against the coracoid process. The cause of this accident is similar to that producing dislocation forwards; the anterior part of the ligament is torn, and the head of the bone has an opportunity of escaping forwards to the coracoid process.

The reduction is also the same as that for the dislocation forwards, but it is necessary to draw the shoulders backwards, to bring the head

of the bone to the glenoid cavity, and then to bend back the shoulders, or the bone will directly slip against the coracoid process, and renew the accident.

Dislocations of the shoulder are sometimes complicated with fracture of the head of the os humeri, the greater tubercle being broken off; this rather facilitates the return of the bone, as the insertion of the supra and infra spinati muscles is removed, but it renders its retention afterwards more difficult.

Fifth,—*Compound Dislocation* of the shoulder joint will be sometimes occasioned by the head of the bone being forced through the integuments by excessive violence; this must immediately be reduced as in a dislocation forwards, and which is not difficult; when the bone is replaced, lint, dipped in blood, may be placed over the wound, or if it be large, a suture applied; adhesive plaster may be used to support the parts, and the limb be kept close to the side by a roller, thus preventing the slightest motion of the head of the bone. Every exertion must be used to prevent the suppurative process, as in the case of compound fracture. (See *Fracture*.)

Dislocations of the Elbow joint.—I. *Of both bones backwards*. This is occasioned by a sudden extension of the hand to save the individual in falling, so that the bones are forced backwards, behind the axis of the humerus, by the weight resting upon them; it is recognized by the shape of the joint being altered by a considerable projection of the ulna and radius above the natural situation of the olecranon, on each side of which appears a depression; a considerable and hard swelling, at the fore-part of the joint, behind the biceps tendon, is formed by the extremity of the humerus; the hand and fore-arm are supine, and flexion nearly lost. Great tumefaction immediately succeeds this accident, and renders its detection difficult.

To reduce this dislocation, place the patient sitting, and apply the knee resting on the chair, to the inner side of the elbow joint in the bend of the arm; the surgeon then taking the patient's wrist, bends the arm, pressing on the radius and ulna with his knee to separate them from the humerus; this throws the coronoid process from the posterior fossa of the humerus, when the reduction is effected. Placing the arm round a bed-post, and forcibly bending it, or fixing the patient in an arm-chair with his arm through the opening at the back, and then bending it, may also reduce the luxation.

II. *Lateral Dislocation*. This is generally produced, as in the former case, when the direction of the fall is varied, and its force applied laterally rather than in front; it may also happen by the wheel of a carriage passing over the arm on uneven ground. The coronoid process is thrown on the back part of the external condyle of the humerus; the

projection of the ulna is greater in this than in the preceding accident, whilst the radius forms a protuberance behind, and on the outer side of the humerus, so as to produce a hollow above it; the motion of the head of the radius is easily felt on rotation of the hand. When the ulna is thrown upon the internal condyle, an apparent hollow is above it, the head of the radius being then also be felt on rolling the hand.

Sometimes the ulna is thrown on the internal condyle, with the head of the radius in the posterior fossa, when the ulna will project more posteriorly than laterally, and the external condyle be very visible. The reduction is nearly the same as in the former dislocation. As soon as the radius and ulna are separated from the humerus, by the pressure of the knee, the muscles guide them to their reduction; indeed in some cases, from the tendon of the biceps and brachialis internus being, on the stretch, if the fore-arm be forcibly extended, these muscles will alone accomplish the reduction.

III. *Dislocation of the Elbow backwards*, may be caused by a severe blow on the lower extremity of the ulna, by which it is suddenly pushed upwards and backwards. The ulna may be thrown back on the humerus without the radius, when there is much deformity, by the fore-arm and hand being twisted inwards; the olecranon projecting backwards: extension is impracticable but by a force which will reduce the dislocation, and it cannot be bent to more than a right angle. It is difficult to detect, but the best marks are the projection of the ulna, and the twist of the arm inwards.

The reduction is more easy than dislocation of both bones; by bending the arm over the knee, and drawing the fore-arm downwards, the brachialis internus will act in resistance, and the radius, resting against the external condyles, pushes the humerus backwards on the ulna, and effects the desired end.

IV. *Of the Radius forwards*. The radius is sometimes separated from the ulna, and its head thrown into the hollow above the external condyle and upon the coronoid process. This accident is occasioned by a fall on the hand when the arm is extended; the radius receives the weight, and is forced up by the side of the ulna, and thrown over the condyle and upon the coronoid process. The fore-arm is slightly bent, but cannot be brought to a right angle with the upper, or completely extended: when suddenly bent, the head of the radius strikes against the fore-part of the humerus; the hand is prone, but not perfectly so, and it cannot be rendered supine; the head of the radius may be felt in the fore and upper part of the joint, and rotation perceived, and this circumstance, with the impediment to bending the arm, are the best diagnostic marks.

The reduction is very hard to accomplish; it may however be effected

by pulling from the hand, as from the connection of the hand with the radius, that bone alone is acted upon in extension: the great art is to make such extension as will not include the ulna.

V. *Of the Radius backwards.* Sir Astley Cooper has never seen this accident in a living person: when it occurs, the head of the bone is thrown behind the external condyle, and rather to the outer side, and may be seen and felt behind it.

The reduction can be effected by bending the arm, taking care to keep it at right angles by bandages, and well secured by splints until the coronary ligament, which is lacerated, unites. The time required for re-union, may be four or five weeks.

Dislocation of the Wrist Joint.—I. *Of both bones, backwards and forwards.* This is not of frequent occurrence; the bones are thrown either backwards or forwards, as the force is applied according to the direction of the fall; if it have taken place on the palm, the radius and ulna are forced upwards upon the ligamentum carpi annulare, and the carpal bones thrown backwards, when a considerable swelling is produced by the radius and ulna on the fore-part of the wrist, and a similar protuberance on the back by the carpus, the hand being bent back. In the dislocation backwards, the radius and ulna are thrown on the posterior part of the carpus, and the carpus forced under the flexor tendons, passing behind the ligamentum carpi annulare: in all cases two swellings are produced, distinguishing either accident from a sprain of the tendons on the fore-part of the wrist.

In reducing these dislocations, grasp the hand, supporting the forearm, while an assistant places his hands round it just above the elbow; make gradual extension in different directions, when the reduction is generally accomplished: the direction of force is, in both accidents, the same, the muscles drawing the bones to their natural situation, on being released from the carpus. Bind the wrist in a roller, wet with spirits and water, and support the fore-arm with splints, before and behind, as far as the metacarpal extremities.

II. *Dislocation of the Radius at the Wrist.*—This bone may be thrown on the fore-part of the carpus, and lodged on the scaphoid and trapezium bones; the outer side of the hand will then be twisted backwards, and the inner side forwards; the extremity of the radius may be felt and seen on the fore-part of the wrist, and its styloid process is no longer opposite the trapezium. The accident is caused by a fall when the hand is bent back, and it also arises from a fall upon the hand, by which the condyles of the humerus are broken obliquely, while the radius is dislocated at the wrist. The reduction may be attempted in the same manner as in the last case.

III. *Dislocation of the Ulna, backwards.*—As this bone does not form

a part of the wrist joint, but is received into a capsular ligament of its own, and is separated from the wrist by a moveable cartilage, it is more frequently dislocated; when it occurs, the saciform ligament is torn through, and the bone generally projects backwards, forming a protuberance at the back part of the wrist, whence it is easily reduced, although the deformity soon returns from the laceration of the ligament. The projection of the ulna above the level of the ulniform bone, and the styloid process being no longer in a line with the metacarpal bone of the little finger, form the diagnostic marks. The reduction is effected by pressure of the bone forwards, and bringing the ulna into its cavity; to retain it there, apply splints along the fore-arm, in a line with the back and palm of the hand, and on the extremity of the ulna, place a leather compress, with a roller over the whole.

IV. *Dislocation of the Ulna*, forwards, with simple fracture of the radius. In this case, the fracture occurs one inch above the articulation, and if in a very oblique direction, so great a displacement is occasioned as to dislocate the ulna forwards. The hand being thrown back on the fore-arm as in dislocation backwards, and a projection caused by the ulna under the flexor carpi ulnaris tendon, just above the os pisiforme, and the detection of the fractured radius under the flexor tendons, must guide us in pronouncing upon the nature of this accident. In reduction, a very powerful extension must be employed to bring the ends of the radius into apposition, and great difficulty is afterwards experienced in keeping them there: extend the hand, an assistant drawing back the fore and upper arm, place a cushion on the inner part of the wrist, and another on the back of the hand, firmly bound down by a roller, to keep the ulna and broken end of the radius in situ, and a padded splint on the back and inner side of the arm to extend the extremities of the metacarpal bones, confined by a roller from the fore-arm, only to the wrist: direct the use of a sling for three weeks in young, and five in old persons, before passive motion is permitted; the recovery is slow, and the use of the fingers very gradually returns.

V. *Compound Dislocation of the Ulna*, with fracture of the radius, is a very serious accident when the fracture is much comminuted. It may be caused by a very severe fall on the back part of the hand, when the ulna protrudes through the integuments, and the lower end of the radius is obliquely fractured. The parts are replaced without much difficulty, when the accident is not very severe; they should be afterwards bound up with a pledget of lint dipped in the blood, and the usual means adopted for preventing suppuration and constitutional irritation.

When any loose portions of bone are discovered at the extremity of the radius, the wound should be enlarged for their removal, and, in fact,

the same measures pursued as recommended under the head of *Compound Fracture*, which see.

Dislocations of the Fingers and Thumb.—The union of the phalanges of the fingers to the metacarpal bones, and to each other, is so strengthened, by capsular and lateral ligaments, by the tendons of the extensor muscles posteriorly, and the tendons of the flexors, and by the thecæ anteriorly, that their dislocation is very rare; when it does occur, it more frequently happens between the first and second, than between the second and third phalanges; the accident can be readily distinguished by the projection of the first phalanx backwards, while the head of the second can, although less distinctly, be felt under the thecæ.

The dislocation is reduced by making extension, with a slight inclination forwards to relax the flexor muscles; but, if the case has been neglected at first, it will require a long continued extension before the parts are restored. It is never advisable, however warmly the practice may have been recommended, to divide ligaments or tendons, to facilitate reduction when extension will not succeed; more mischief would be occasioned by such a step than the slight deformity produced by the original injury.

The dislocations to which the *Thumb* is liable are the following:—
1. *Of the metacarpal bone from the os trapezium.* In this accident the metacarpal bone is thrown inwards, between the trapezium, and the root of the metacarpal bone supporting the fore-finger, forming a protuberance towards the palm of the hand, the thumb being bent backwards, with an inability of bringing it towards the little finger. Considerable pain and swelling is produced by this accident. For the facility of reduction, as the flexor muscles are much stronger than the extensors, it is best to incline the thumb towards the palm of the hand during the time extension is making, and thus the flexors become relaxed, and their resistance diminished. The extension must be steadily, and for a considerable time, supported, as no sudden violence will effect the reduction. If the bone cannot be reduced by simple extension, it is best to leave the case to the degree of recovery which nature will in time produce; rather than divide the muscles, or run any risk of injuring the nerves and blood-vessels.

This bone is sometimes dislocated by the bursting of guns, which produces compound luxation; it can in these cases, usually, be easily returned to its natural situation; and the integuments being brought and confined over it by suture, a poultice is applied, and, under common circumstances, where the degree of bruise has not been very considerable, a cure is perfected. Sometimes, however, the metacarpal bone becomes so much detached from the trapezium, and the muscles so severely torn, that it is necessary to remove the thumb; under which circum-

stance, it is best to saw off the articular surface of the trapezium.

II. Dislocation of the first Phalanx.—This accident may be either simple or compound: in the former, the first phalanx is thrown back upon the metacarpal bone, the lower extremity of which projects very much inwards towards the palm of the hand, and the extremity of the phalanx backwards. The motion of that joint is lost, but that of the thumb remains free. The direction in which the extension is to be made, is to bend the thumb towards the palm of the hand, to relax the flexor muscles as much as possible; and the mode of applying the extending force is as follows; which may be considered as the general mode to be adopted, both in dislocations of the toes, thumb, and fingers. The hand is to be first steeped in warm water for a considerable time, to relax the parts as much as possible; then a piece of thin wetted leather put around the first phalanx, and closely adapted to the thumb; a portion of tape, about two yards in length, may then be applied upon the surface of the leather, in the knot which is call by sailors the “clove hitch,” for this becomes tighter as the extension proceeds. An assistant placing his middle and fore-finger between the thumb and fore-finger of the patient, makes the counter extension, whilst the surgeon draws the first phalanx from the metacarpal bone, directing it a little inwards towards the palm of the hand.

In compound dislocations of the first phalanx of the thumb, if there be much difficulty in its reduction, and the wound be large, it is best to saw off the extremity of the bone, rather than to bruise the parts by long continued extension.

Dislocation of the second Phalanx.—If this be a simple dislocation, the best mode of reducing it is, for the surgeon to grasp the back of the first phalanx with his fingers, and apply his thumb upon the fore-part of the dislocated phalanx, and then bend it upon the first as much as he possibly can. In compound dislocations of this joint, the extremity of the second phalanx may be sawed off, taking care not to injure the tendon which is torn through; for when the bone is removed, the ends of the tendon may be readily approximated, and adapted to each other.

Dislocations of the Femur.—Sir A. Cooper describes these accidents as liable to occur in four ways only. I. Upwards, or upon the dorsum of the ilium. II. Downwards, or into the foramen ovale. III. Backwards and upwards, or into the ischiatic notch. IV. Forwards and upwards, upon the body of the pubes. Sir A. Cooper observes that during a practice of thirty years, no dislocation downwards and backwards occurred at St. Thomas's or Guy's hospitals in London, and that he doubts the possibility of its existence.

I. Upwards, or upon the dorsum of the Ilium.—This is the most frequent, and is recognised from the dislocated limb being from one inch

and a half to two inches and a half shorter than the other, which is well displayed by comparing the malleoli interni. The toe of the side affected rests against the tarsus of the other foot; the knee and foot are turned inwards, the knee being advanced upon its fellow, and incapable of rotation outwards.

If so much blood has not been effused, which it seems is sometimes the case in dislocation, as to conceal the bones, the head of the thigh bone can be perceived, on rotating the knee inwards, moving upon the dorsum of the ilium, and the trochanter major is felt near its spinous process; the roundness of the hip is lost, and the trochanter is less prominent than on the opposite side, for the neck of the bone and the trochanter are resting in the line of the surface of the dorsum ilii. This accident is liable to be confounded only with a fracture of the thigh-bone through its neck *within* the capsular ligament, from which, however, it can be readily distinguished when it is recollected that in this fracture the knee and foot are generally turned outwards: the trochanter is drawn backwards: the limb can be readily bent towards the abdomen, although with some pain; but above all, the limb, which is shortened from one to two inches, by the contraction of the muscles, can be made of the length of the other by a slight extension, and when the extension is abandoned, the leg is again shortened. Crepitus, too, can be felt when the limb is extended, but not when shortened; moreover this kind of fracture rarely occurs but in old persons, and is produced by very slight causes, owing to the absorption the bone undergoes in age. Fractures through the neck of the femur, *without* the capsular ligament, occur at any period, and are readily detected by the crepitus, which may be felt by rotating the limb and compressing the trochanter with the hand. Although the symptoms just detailed will for the most part mark the distinctions between these accidents, yet there is a variety of this dislocation mentioned by Mr. S. Cooper, "in which the head of the bone is so situated on the dorsum of the ilium that it lies forward, and the trochanter major backward. This case deserves particular attention, because, being attended with a considerable turning of the toes outwards, as well as a shortening of the limbs, it is the only example which is likely to be mistaken for a fracture of the neck of the thigh-bone. It is, however, not difficult of detection; for you can even feel the head of the bone projecting forward on the ilium, and you cannot rotate the limb inwards, which may be done in cases of fracture, though doing so is productive of immense suffering." (See his *Surg. Dict.* art. *Dislocation*.) The circumstance, too, of the ready extension of the limb to its natural length occurring only in fractures, as stated above, may help to form the diagnosis.

Of the reduction,—Sir Astley Cooper, in his valuable *Essays*, says:—

"In the reduction of this dislocation the following plan is to be adopted: take from the patient from twelve to twenty ounces of blood, or even more, if he be a very strong man, and then place him in a warm-bath at the heat of 100 deg. and gradually increase it to 110 deg. until he feels faint. During the time he is in the warm-bath give him a grain of tartarized antimony every ten minutes until he feels some nausea, then remove him from the baths and put him in blankets, and place him between two strong posts about ten feet from each other, in which two staples are fixed; or rings may be screwed into the floor, and the patient be placed upon it. The patient is to be placed on a table covered with a thick blanket, upon his back; then a strong girt is passed between his pudendum and thigh, and this is fixed to one of the staples. A wetted linen roller is then tightly applied just above the knee, and upon this a leather strap is buckled, having two straps with rings at right angles with the circular part. The knee is to be slightly bent, but not quite to a right angle, and brought across the other thigh a little above the knee. The pullics are fixed in the other staple, and in the strap above the knee. The patient being thus adjusted, the surgeon slightly draws the string of the pulley, and when he sees that every part of the bandage is upon the stretch, and the patient begins to complain, he waits a little to give the muscles time to fatigue; he then draws again, and when the patient complains much, again rests, until the muscles yield. Thus he gradually proceeds until he feels the head of the bone descend. When it reaches the brim of the acetabulum, he gives the pulley to an assistant, and desires him to preserve the same state of extension, and the surgeon then rotates the knee and foot gently outwards, but not with a violence to excite opposition in the muscles, and in this act the bone slips into its place. In general it does not return with a snap into its socket when the pullics are employed, because the muscles are so much relaxed, that they have not sufficient tone remaining to permit them to act with violence, and the surgeon only knows of the reduction by loosening the bandages. It often happens that the bandages get loose before the extension is completed, which should be guarded against by having them well secured at first, but if they are obliged to be renewed, as little time as possible should elapse in their re-application, to prevent the muscles having time to recover their tone.

"It is sometimes necessary to lift the bone by placing the arm under it near the joint, when there is difficulty in bringing it over the lip of the acetabulum.

"After the reduction, in consequence of the relaxed state of muscles, great care is required in returning the patient to his bed."

II. "On the Dislocation downwards, or in the Foramen Ovale.—This accident happens when the thighs are widely separated from each other.

The ligamentum teres and the lower part of the capsular ligament are torn through, and the head of the bone becomes situated in the posterior and inner part of the thigh upon the obturator externus muscle. The limb is in this case from two to three inches longer than the other. The head of the bone can be felt by pressure of the hand, upon the inner and upper part of the thigh towards the perineum. The trochanter major is less prominent than on the opposite side. The body is bent forwards, owing to the psoas and iliacus internus muscles being put upon the stretch. The thigh is considerably advanced if the body be erect; the knee is widely separated from the other, and cannot be brought without great difficulty near the axis of the body to touch the other knee, owing to the extension of the glutei and pyriformis muscles. The foot, though widely separated from the other, is neither turned outwards or inwards generally, although it varies a little in this respect in different instances; but the position of the foot does not in this case mark the accident. It is the bent position of the body, the separated knees, and the increased length of the limb, which are the diagnostic symptoms.

"The reduction of this dislocation is generally very easily effected. If the accident has happened recently, all that is required is to place the patient upon his back, to separate the thighs as widely as possible, and to place a girt between the pudendum and upper part of the thigh, fixing it to a staple in the wall. The surgeon then puts his hand upon the ankle of the dislocated side, and draws it over the sound leg, and thus slips it into its socket. In this case the patient might have the thigh fixed by the bed-post, received between the pudendum and the upper part of the limb, and the leg be carried inwards across the other; but in general it is required to fix the pelvis by a girt passed round it, and crossed under that, which passes around the thigh, otherwise the pelvis moves in the same direction with the head of the bone. And in those cases in which the dislocation has existed for three or four weeks, it is best to place the patient upon his side, to fix the pelvis by one bandage, and to carry another under the thigh to which the pulleys are affixed, and to draw the thigh, upwards; whilst the surgeon presses down the foot to prevent the lower part of the limb being drawn with the thigh-bone. Thus the limb is used as a lever with very considerable power. Great care must be taken not to advance the leg in any considerable degree, otherwise the head of the thigh-bone will be forced behind the acetabulum into the ischiatic notch, from whence it cannot be afterwards reduced."

III. *Of the dislocation backwards, or in the Ischiatic Notch.*—"In this dislocation the head of the thigh-bone is placed on the pyriformis muscle, between the edge of the bone which forms the upper part of the ischiatic

notch, and the sacro-sciatic ligaments. The head of the bone is placed behind the acetabulum, and a little above the level of the middle of that cavity.

"It is the dislocation most difficult both to detect and to reduce:—to detect, because the length of the limb differs but little, and its position is not so much changed as regards the knee and foot, as in the dislocation upwards: to reduce, because the head of the bone is placed deep behind the acetabulum, and it therefore requires to be lifted over its edge, as well as to be drawn towards its socket.

"The signs of this dislocation are, that the limb is about half an inch to one inch shorter than the other, but generally not more than half an inch; that the trochanter major is behind its usual place, but is still remaining nearly at right angles with the ilium, with a slight inclination towards the acetabulum. The head of the bone is so buried in the ischiatic notch, that it cannot be distinctly felt but in thin persons, and then only by rolling the thigh-bone forwards as far as the comparatively fixed state of the limb will allow. The knee and the foot are turned inwards, but not nearly so much as in the dislocation upwards, and the toe rests against the ball of the great toe of the other foot. When the patient is standing, the toe touches the ground; but the heel does not quite reach it. The knee is not so much advanced as in the dislocation upwards, but is still brought a little more forward than the other, and is slightly bent. The limb is fixed, so that both flexion and rotation are in a great degree prevented."

"This dislocation is produced by force, being applied when the body is bent forward upon the thigh, or when the thigh is bent towards the abdomen; thus, if the knee be pressed inward, the head of the bone is thrown behind the acetabulum.

"The *reduction* of the dislocation in the ischiatic notch is generally extremely difficult, and is best effected in the following manner: The patient lies on a table upon his side, and a girt is to be placed between the pudendum and the inner part of the thigh to fix the pelvis. Then the leather strap for the pullies is applied above the knee, upon which a wetted roller is tightly applied. A napkin is to be carried under the upper part of the thigh. The thigh-bone is then brought across the middle of the other thigh, measuring from the pubes to the knee, and extension made with the pullies. Whilst this is conducting, an assistant pulls the napkin at the upper part of the thigh with one hand, and rests the other upon the brim of the pelvis, and thus lifts the bone as it is drawn towards the acetabulum, over its lip. For the napkin I have seen a round towel very conveniently substituted, and this was carried under the upper part of the thigh, and over the shoulders of an assistant,

who then rested his hands on the pelvis, as he raised his body and lifted the thigh.”*

Sir A. Cooper relates a case in Guy's Hospital, where, in this dislocation of the thigh the extension was made with pullies in a right line with the body; and at the time the extension was made, the trochanter major was thrust forwards with the hand, and the bone returned in about two minutes into its socket with a violent snap.

IV. *Of the Dislocation on the Pubis.*—“This dislocation is more easy of detection than any other of the thigh. It happens, from a person in walking putting his foot into some unexpected hollow in the ground, and his body at the moment is bent backwards; the head of the bone is thrown forwards upon the pubis.”

“The limb is in this case an inch shorter than the other; the knee and the foot are turned outwards, and cannot be rotated inwards, but there is a slight flexion forwards and outwards; and in a dislocation which had been long unreduced, the motion at the knee backwards and forwards was full twelve inches; but the striking criterion of this dislocation is, that the head of the thigh-bone may be distinctly felt upon the pubis, above the level of Poupert's ligament, to the outer side of the femoral artery and vein. It feels like a hard ball, which is readily perceived to move by bending the thigh-bone.”

“In the *reduction* of this dislocation, the patient is placed upon his side on a table; the girt is to be carried between the pudendum and inner part of the thigh, and fixed in a staple, a little before the line of the body. The pullies are fixed above the knee, as in the dislocation upwards, and then the extension is to be made in a line behind the axis of the body, the thigh-bone being drawn backwards. After this extension has been for some time continued, a napkin is to be carried under the upper part of the thigh, and an assistant, pressing with one hand on the pelvis, lifts the head of the bone over the pubis and edge of the acetabulum.”

Dr. Dorsey (*see his Surgery*) mentions an unusual case, where the head of the bone was below Poupert's ligament, rendering the limb longer.

Dislocations of the Patella.—“The patella is liable to be dislocated in three directions; namely, outwards, inwards, and upwards.

“In its lateral dislocation the bone is most frequently thrown on the external condyle of the os femoris, where it produces a great projection; and this circumstance, with an incapacity of bending the knee, is the

* Dr. Smith, of New-Haven, proposes a simple and ingenious method of reducing this dislocation; it consists in bringing the knee up to the breast, throwing it outwards, and bringing it down again; this he states will effect the reduction.

strong evidence of the nature of the injury. The most frequent cause of the accident is, when a person, in walking or running, falls with his knee turned inwards, and the foot outwards, and thus, by the action of the muscles to prevent the fall, the patella is drawn over the external condyle of the os femoris; when the person attempts to rise, he finds himself unable to bend his leg, and the muscles and ligaments of the patella are all forcibly on the stretch. This accident generally occurs in those who have some inclination of the knee inwards, which, under the action of the extensor muscles, gives a direction to the patella outwards."

"The *internal* dislocation is much less frequent, and happens from falls upon a projecting body, by which the patella is struck upon its outer side, or by the foot being, at the time of the fall, turned inwards."

"The mode of *reduction* in either case consists in pursuing the following plan. The patient is placed in a recumbent posture, and an assistant raises the leg by lifting it at the heel; the advantage of which is, that it relaxes the exterior muscles in the greatest possible degree; then the surgeon presses down that edge of the patella which is most remote from the joint, be it one luxation or the other; and this pressure raises the inner edge of the bone over the condyle of the os femoris, and it is immediately drawn, by the force of the muscles, into its situation."

"An evaporating lotion of spirit of wine and water is to be applied, and in two or three days the limb may be bandaged, and is soon restored to its natural uses, although it is somewhat weaker than before."

"When the bone is dislocated from relaxation, the patella is drawn upon the external condyle of the os femoris from very slight accidents, or from sudden action of the muscles."

"The reduction is effected in the manner before described, and to support the weakened ligament, a laced knee-cap, with a strap and buckle above and below the patella, may be worn."

On the Dislocation of the Patella upwards.—"In this dislocation the ligament of the patella is torn through by the action of the rectus femoris muscle, and the immediate effect of the injury is to draw the patella upwards upon the fore-part of the thigh-bone.—The appearances, which this accident presents, are very decisive of the nature of the injury; for, besides the elevation of the patella, and its easy motion from side to side, a deep depression is felt above the tubercle of the tibia from the absence of the ligament: the patient immediately loses the power of bearing upon that limb, as the knee bends under each attempt, and he would fall if he persisted in throwing the weight of his body upon it. A considerable degree of inflammation follows. Local depletion and evaporating lotions may be used from four to seven days, and then a roller applied round the foot and upon the leg, to prevent it from

swelling; the leg should be kept extended by a splint behind the knee, and a bandage composed of a leather-strap buckled around the lower part of the thigh; to this another is attached, which is carried on each side of the leg, and under the foot, and then buckled to the circular strap; thus the bone is gradually drawn down, so as to allow of an union of the ligament. In a month the knee may be slightly bent, and as much passive motion daily given as the patient is able to bear; by these means the ruptured ligament becomes united, and the patella retains its motion."

Dislocation of the Tibia at the Knee-Joint.—"These dislocations occur in four different directions; but two of them are incomplete and lateral, while the others are perfect luxations, the tibia being thrown either backwards or forwards."

"The lateral dislocations are but rare. *Internal.* In the dislocation inwards, the tibia is thrown from its situation, so that the condyle of the os femoris rests upon the external semilunar cartilage, and the tibia projects on the inner side of the joint, so as at once to disclose the nature of the injury."

External.—"The tibia is sometimes thrown upon the outer side of the knee-joint, the condyle of the os femoris being placed in the situation of the inner semilunar cartilage, or rather behind it, when an equal deformity is produced, as in the other dislocation. The reduction of the limb is equally easy with the former, and the patient recovers with little diminution of the powers of the part. In both these dislocations the tibia is rather twisted upon the os femoris, so that the condyle of that bone, with respect to the tibia, is thrown somewhat backwards, as well as outwards or inwards."

Forwards.—"The tibia is now and then dislocated in the direction forwards. In this accident, when the person is recumbent, the external marks of the injury are the following:—The tibia is elevated, the thigh-bone depressed, and thrown somewhat to the side as well as backwards. The os femoris makes such pressure on the popliteal artery, as to prevent the pulsation of the anterior tibial artery on the foot, and the patella and tibia are drawn by the rectus muscle forwards."

Backwards.—"The head of the tibia is sometimes dislocated backwards, behind the condyles of the os femoris, producing the following appearances: a shortened state of the limb, a projection of the condyles of the os femoris, and depression at the ligament of the patella, while the leg is bent forwards."

These accidents are obvious to any observer, and are easily reduced by extending the limb, and thrusting the bones into their proper situations. The most active measures should be taken to prevent inflammation, as general bleeding, purging, leeches, and cold washes to the part,

and absolute rest. After all inflammation has subsided, bandages and the laced knee-cap may be applied, to support the limb.

On partial Luxations of the Thigh-bone from the semi-lunar Cartilages.—"Under extreme degrees of relaxation, or in cases in which there has been increased secretion into a joint, the ligaments become so much lengthened as to allow the cartilages to glide upon the surface of the tibia, and particularly when pressure is made by the thigh-bone on the edge of the cartilage."

"The semilunar cartilages which receive the condyles of the os femoris are united to the tibia by ligaments, and when these ligaments become extremely relaxed and elongated, the cartilages are easily pushed from their situation by the condyles of the os femoris, which are then brought into contact with the head of the tibia, and, when the limb is attempted to be extended, the edges of the semilunar cartilages prevent it. How then is the bone to be again brought upon the cartilages? Why, as Mr. Hey has advised, by bending the limb back as far as is possible, which enables the cartilage to slip into its natural situation, from the pressure of the thigh-bone being removed in the bent position, and the leg being brought forwards, it can then be completely extended, because the condyles of the os femoris are again received on the semilunar cartilages."

This method of reduction, however, Sir A. Cooper says, is not always successful, and he mentions a case where the patient reduced the limb by "sitting on the ground, and then bending the thigh inwards and pulling the foot outwards, the subluxation of the os femoris being external, the natural position of the limb became restored." For preserving the parts in their places, a bandage composed of a piece of linen with four rollers attached to it, should be tightly bound above and below the patella. These accidents mostly arise from striking the toe, when the foot is averted, against any projection; from turning suddenly in bed, and the clothes not suffering the foot to turn readily with the body; also from a sudden twist of the knee inwards, when the foot is turned outwards. These cases are sometimes complicated with chronic rheumatism, attended with enlargement of the joint, and other deformities. Blisters, bandages, &c. are here useful.

Sir A. has never seen but one case of *compound* dislocation at the knee—the accident requires amputation, unless where the wound is so small as to admit of ready closure, and adhesion after reduction. Dislocation will sometimes occur in this joint, from chronic disease, when inflammation, beginning in the synovial membrane, and proceeding to ulcerate the articular cartilages and bone, at length affects the capsular and other ligaments, when the bones becoming unconnected, and the muscles irritated, the limb is gradually displaced from the femur, which

bone may be thus placed out of its natural line with the tibia, either on one side or the other.

The treatment consists in opposing the action of the muscles, when their irritability commences, by the application of splints, and by the exhibition of the pulvis ipecacuanhæ comp., and other medicines of a similar nature, tending to diminish the irritable state of the system at large.

Ulcerative dislocation may occasionally take place in other joints, as well as that of the knee, but it is most common in this situation.

Dislocation of the head of the Fibula.—This is more frequently the result of relaxation of the ligaments than violence. It is thrown backwards, but is easily brought into its proper place again, though exceedingly apt to be re-displaced and to give much trouble. The relaxation may be remedied by liniments, bandages, tonics, &c.

Of the Dislocations of the Ankle-Joint.—*Of the simple Dislocation of the Tibia inwards.*—This is the most frequent of the dislocations of the ankle; the tibia, in this accident, has its internal malleolus thrown inwards, which so forcibly projects against the integuments as to threaten their bursting. The foot is thrown outwards, and its inner edge rests upon the ground; about three inches above the outer ankle there is a deep depression, and a general tumefaction, from extravasation, surrounds the joint."

"Upon dissection, the internal appearances are as follow: the end of the tibia rests upon the inner side of the astragalus, instead of on its upper articulatory surface, and if the accident has occurred from a person jumping from a considerable height, the lower end of the tibia, where it is connected with the fibula, by ligament, is split off, and remains connected with the fibula, which is also broken from two to three inches above the joint, and the broken end of the fibula is carried down upon the astragalus, occupying the natural situation of the tibia; the malleolus externus of the fibula remains in its natural situation, with two inches of the fibula and the split portion of the tibia; the capsular ligament attached to the fibula at the malleolus externus, and the three strong fibular tarsal ligaments, remain uninjured."

"For the reduction of this dislocation the patient must be placed upon a mattress properly prepared, and resting on the side on which the injury has been sustained; he should then bend the leg at right angles with the thigh, so as to relax the gastrocnemii muscles as much as possible, and an assistant grasping the foot gradually draws it into a line with the leg. The surgeon fixes the thigh and presses the tibia downwards, thus forcing it upon the articulating surface of the astragalus."

Treatment.—"After the limb has been reduced, it should still remain upon its outer side in the bent position, with the foot well supported; a many-tailed bandage be placed over the part to prevent it slipping from

its place, and kept wet with an evaporating lotion. Two splints are then to be applied; that upon which the outer part of the limb rests having a foot-piece, to give support to the foot, prevent its eversion, and preserve it at right angles with the leg. If much inflammation succeed, leeches may be applied to the parts, and blood taken from the arm if necessary, at the same time paying great attention to the bowels. A person who has suffered this accident may be removed from his bed in five or six weeks, long straps of plaister being passed around the joint to keep the parts together, and he may be suffered to walk on crutches; but from ten to twelve weeks elapse before he has the free motion of his foot."

Of the simple Dislocation of the Tibia forwards.—"In this accident the foot appears much shortened, the heel proportionably lengthened and firmly fixed, and the toes are pointed downwards. Upon dissection the tibia is found to rest upon the upper surface of the os naviculare and os euneiforme internum, quitting all the articulatory surface of the astragalus, excepting a small portion on its fore part, against which the tibia is applied. The fibula is broken, and its fractured end advances with the tibia, and is placed by its side; its malleolus externus remains in its natural situation, but the fibula is broken about three inches above the joint; the capsular ligament is torn through on its fore-part, the deltoid ligament is only partially lacerated, and the three ligaments of the fibula remain unbroken."

"The treatment consists in attending to the following rules: the patient is placed in bed on his back; one assistant grasps the thigh at its lower part, and draws it towards the body, and another pulls the foot in a line a little before the axis of the leg, while the surgeon pushes the tibia back to bring it into its place. The same principles are held in view in this mode of reduction as in the former, with respect to the relaxation of the muscles."

Of the partial Dislocation of the Tibia forwards.—"This bone is sometimes partially luxated forwards, so as to rest half on the os naviculare, and half on the astragalus. The fibula, in this accident, is broken; the foot appears but little shortened, nor is there any considerable projection of the heel. The signs of this accident are as follow: The foot is pointed downwards, and a difficulty is experienced in the attempt to put it flat on the ground: the heel is drawn up, and the foot in a great degree immovable."

Treatment.—"In these cases, however slight they may appear, we are not to rest satisfied until the foot be returned into its natural position; for if neglected in the commencement, severe inflammation and tension will prevent even a forcible extension being afterwards useful; and if still longer neglected, the changes in the state of the muscles, and the

union of the bones will preclude the possibility of a reduction, even under the most violent attempts. The mode of reduction and after-treatment will in no respect differ from that required in the perfect dislocation of the bone."

Dislocation of the Tibia outwards.—"This luxation is the most dangerous of the three, for it is produced by greater violence, is attended with more contusion of the integuments, more laceration of ligament, and greater injury to the bone; the foot is thrown inwards, and its outer edge rests upon the ground. The malleolus externus projects the integuments of the ankle very much outwards, and forms so decided a prominence that the nature of the injury cannot be mistaken; the foot and the toes are pointed downwards."

"The mode of reduction consists, in placing the patient upon his back, in bending the thigh at right angles with the body, and the leg at right angles with the thigh; the thigh is then grasped under the ham by one assistant, and the foot by another; and thus an extension is made in the axis of the leg, whilst the surgeon presses the bone inwards towards the astragalus. The limb, in the simple dislocation, is laid upon its outer side, resting upon a splint, with a foot-piece, and a pad placed upon the fibula, just above the outer angle, and extending a few inches upwards, so as in some measure to raise that portion of the leg, and prevent the tibia and fibula slipping from the astragalus, as well as to lessen the pressure of the malleolus externus upon the integuments, where they have sustained injury."

"The local and general treatment will be the same as in former cases, although more depletion is required as greater inflammation succeeds; the greatest care is required that the foot does not become twisted inwards or pointed downwards, as either of these states prevents the limb from being afterwards useful. Passive motion should be given to the joint in six weeks from the accident."

On Dislocation of the Tarsal Bones.—*On the Dislocation of the Astragalus.*—"A simple luxation is a most serious accident, being very difficult to reduce; and should the reduction not be effected, the patient is ever after doomed to a considerable degree of lameness."

"This bone may be dislocated either inwards or outwards, and requires powerful extension, sometimes even with pulleys, when the bone is to be forced into its place. Tartrate of antimony may be also necessary. In one case of compound dislocation of this bone, amputation of the limb was performed. In another instance a Mr. Tyre removed the bone entirely. The same was done by Desault and others. The five anterior bones of the tarsus are sometimes dislocated from the os calcis and the astragalus, in consequence of a heavy weight falling on the foot. It is

upon the whole very rare, and may be reduced by extension, and turning the fore part of the foot into its place.

Sir A. Cooper has seen two cases where the *os cuneiforme internum* was dislocated inwards, in consequence of a violence that ruptured the ligament connecting it with the middle cuneiform bone. This bone may be reduced, and confined in its place by passing a bandage around the foot, and, after the inflammation is subdued, by wearing a strap and buckle in the same manner.

The first phalanx of the great toe is sometimes dislocated from the first metatarsal bones, and the first phalanges of the other toes from their metatarsal articulations; the signs resemble those afforded in similar dislocations of the fingers, and all attempts at reduction, must be conducted on the same principles, though rarely with equal dexterity, on account of their greater shortness, and the difficulty of applying proper extension in consequence.

Compound Dislocations.—The bones are to be immediately carefully washed clean of all extraneous matter, blood, &c., and reduced; the edges of the wound to be brought accurately together, and union promoted by the first intention, in order to reduce it to a simple dislocation. If union does not take place, all the after-treatment as in compound fracture is necessary. Amputation is by no means so frequently performed in those cases as formerly, particularly at the ankle. The advanced age of the patient; extensive injury of the integuments, vessels, nerves, &c.; shattered state of the bones; difficulty in effecting reduction, and retaining the parts in the proper situation; an irritable habit; extensive suppuration, and high local irritation supervening, are all causes for amputation; and the judgment of the surgeon must decide when the operation is necessary. Sir A. Cooper is not an advocate for amputation even when tetanus ensues; nor, in cases where the anterior tibial artery is wounded. He further says, “if the lower extremity of the tibia be broken into small pieces, the loose portions of bone ought to be removed and the end of the tibia smoothed by a saw; but if in addition to this comminution, the lower extremity of the tibia be obliquely broken, and a large loose portion of bone be felt with the fingers, then it will be proper to amputate; also if the astragalus be broken, the portions of this bone should be removed, or they will separate by ulceration, or occasion unnecessary local irritation. But if the end of the tibia and tarsal bones, as the astragalus and calcis, are broken, then amputation will be required.”

Sawing off the ends of the bones is sometimes practised in compound dislocations at the ankle, and the reasons assigned for so doing are,—difficulty in effecting the reduction, or its being complicated with an oblique fracture, so that the bone when reduced will not remain upon

the astragalus. It also, by lessening the length of the limb, lessens the liability of the muscles to contract, and diminishes the local irritation, when the adhesive process will sooner take place between the end of the tibia and the astragalus; suppuration, when it ensues, is less, because, one-half of the cartilage is already removed, which would otherwise exfoliate. Sir A. Cooper has known no case of death occur after this was done; but he has on some occasions contented himself with removing the cartilage only, from the end of the bone, with a strong knife; the limb is not much shortened by this operation, nor is the degree of ankylosis so great as commonly imagined, and the motion of the tarsal bones even becomes increased. Sir A. Cooper says, "If the dislocation can be easily reduced without sawing off the end of the bone; if it be not so obliquely broken, but that it remains firmly placed upon the astragalus when reduced; if the end of the bone be not shattered, for then the small loose pieces of bone should be removed, and the surface of the bone be smoothed by the saw; if the patient be not excessively irritable, so as to occasion the muscles to be thrown into violent spasmodic actions in the attempt at reduction, and which leads to subsequent displacement when the limb is reduced; the bones should be at once returned into their places, and the parts should be united by the adhesive inflammation; but rather than amputate the limb, if the above circumstances were present, I should certainly saw off the ends of the bones."

In disposing of the limb, a many-tailed bandage may be applied, the portions of which should not be sewn together, but passed under the leg, so that any one piece may be removed when it becomes stiff, by fixing another to its end, without any disturbance to the limb; this bandage to be kept constantly wet with spirits of wine and water. A hollow splint, with a foot-piece at right angles, should be applied on the outer side of the leg, in the dislocation inwards, the leg lying upon its outer side: but in the dislocation outwards, the limb may rest upon the heel, with a splint both upon the outer and on the inner side, with an aperture in the splint opposite to the wound.

"The patient's knee must be slightly bent in each dislocation, to relax the gastrocnemii muscles; the foot carefully kept at right angles with the leg, otherwise the limb will be useless when the wound is healed, the patient placed on a mattress, a pillow reaching from half way above the knee to beyond the foot, and another rolled under the hip, to support the upper part of the thigh-bone." Bleeding and a cathartic may be afterwards necessary; also poultices, if suppuration take place, as well as leeches upon the limb at a distance from the wound. Consult Desault's *Journal of Surg.*;—Pott on *Fracture and Dislocation*;—Hey's *Prac. Obs.*;—White's *Cases*;—Cooper's *Surg.*

Dict., and Sir A. Cooper's works on dislocations, from whence the greater portion of this article has been compiled.

DIURETICS, (from *διουρησις*, a discharge of urine). Medicines, which increase the urinary discharge; they may be thus arranged, according to their supposed modes of operation.

CLASS I.—*Medicines which act primarily on the urinary organs.*—1st. By stimulating the secreting vessels of the kidneys, by contact. The medicines not undergoing any decomposition *in transitu* are potass, nitrate of potass, oil of turpentine, juniper, and cantharides. The medicines undergoing decomposition *in transitu*, are the acetate and super-tartrate of potass, squill, colchicum, and copaiba.

CLASS II.—*Medicines which act primarily on the absorbents, and secondarily on the kidneys, as mercury.*

CLASS III.—*Medicines which act primarily on the stomach and primæ viæ, and secondarily on the absorbents.* 1st. By diminishing arterial action, and increasing that of absorption, as digitalis and tobacco. 2nd. By increasing the tone of the body in general, and that of the absorbent system in particular, as bitter tonics. 3rd. By producing catharsis, and thereby increasing the action of the exhalents *directly*, and that of the absorbents *indirectly*, as elaterium, jalap, &c.

DOG-WOOD, a good indigenous substitute for Peruvian bark; there are three varieties; the round-leaved dogwood, (*cornus circinata*,) the common dogwood, (*cornus Florida*,) and the swamp dogwood (*cornus sericea*); of these species, the property of the bark is very similar, being tonic, astringent, stomachic, and antiseptic. Dose ʒ ss. to ʒj.; when recent a few drops of opium, should be added to each dose, as it is apt to gripe, a quality which is lost by a twelvemonth's keeping.

DOVER'S POWDER, (*Pulvis ipecacuanhæ compositus*,) a common and useful diaphoretic medicine, of which from gr. x to ʒj. may be administered. It is thus prepared: Of ipecacuanha and opium, in powder, of each one part; of sulphate of potass, eight parts.

DRACUNCULUS, (from *δρακων*, a serpent.) The Guinea worm. See *Worms*.

DROPSY. See *Hydrops*.

DROWNING. See *Asphyxia*.

DURA-MATER, *Fungous Tumours of*. See *Tumours*.

DYSENTERY, (from *δυσ*, difficulty, and *εντερά*, the bowels). The bloody flux.—This disease, which has so much engaged the attention of medical writers, is more frequent in the autumnal months than at any other season of the year; the animal frame is, at this time, generally relaxed and debilitated by long exposure to the stimulus of a high atmospherical temperature, when the digestive organs and intestinal canal necessarily partake of this debility, and are more easily irritated,

than under different circumstances. The contagious nature of this disease has been a subject of considerable dispute; Dr. Cullen, in arranging it under his class *Pyrexia*, distinguished it generically by the term *Pyrexia Contagiosa*, maintaining that it never existed without contagion, while other authorities, on the contrary, have asserted that it is in no instance contagious; this was the opinion of Sydenham, Willis, and of numerous physicians, who have written upon the subject since their time; and at the present period, notwithstanding the weight of testimony that can be adduced in favour of its contagious nature, physicians are as little agreed upon the point as ever. It is impossible to peruse the medical records of military surgeons, without feeling convinced that dysentery is frequently propagated by contagion, a doctrine supported by the evidence of individuals who have had extensive opportunities of watching the disease on board of slave ships, and in the crowded wards of hospitals, and prisons; it would however be going too far to say, that it is always contagious; our daily experience would contradict the assertion. Dysentery occurring in a simple form, is certainly not contagious, but whenever it becomes combined with continued fever, it is highly so. In the admirable observations by Dr. Cheyne of Dublin, upon this disease, this principle is completely established, and the same accurate observer states, that even when dysentery accompanied intermittent fever, no instance was known of its passing to a second person, as was invariably the case, when the fever assumed a continued type. Dysentery, in its worst form, is the disease of hot climates, and between the tropics it rages with a degree of violence unknown in more temperate regions; it arises from two causes, *direct* and *sympathetic*.

The *direct causes* are chiefly those of diet, either in the shape of unwholesome food, or of nourishment taken cold when the body is in a heated state; impure water, or when impregnated with the decomposing matter of animal or vegetable substances, may also operate in its production, and in this latter case, the disease becomes endemic, and extends nearly to every one, within the influence of such a cause.

The *sympathetic or indirect causes*, are those which operate on the intestines, through the medium of other organs, chiefly of the skin, or the lungs; as exposure to currents of cold air, when the body is heated; wet clothes and wet feet, all producing a sudden suppression of perspiration. As in the autumnal months we find the bowels apt to be directly affected by water contaminated with peculiar impurities, or by food of a certain description, we have reason to believe that they are also affected by air contaminated in a particular manner, though we cannot trace the specific nature of the taint; hence, the disease assumes an epidemic, or, as in the instance before alluded to, an endemic range. The same

season that favours the origin of dysentery, creates a tendency to various fevers, especially to those of a bilious and intermittent type, and with these, dysentery, is particularly disposed to combine, by which it is rendered more complicated; and although in some cases it excites a transfer of their action, and even destroys their violence, in others, on the contrary, it increases the symptoms, and pursues its own course with ten-fold violence.

Symptoms.—Gripping pains in the bowels, and a frequent desire to go to stool, the evacuations being watery, mucous, or bloody, and without any or a very slight admixture of natural fæces; the patient complains of a load in the intestines, which he endeavours to relieve by frequent but ineffectual strainings; occasionally hardened masses of fæces are passed, called seybala, but the appearance is rare, and of no great importance. The disease is always accompanied by fever, sometimes of a very inflammatory character; the pulse is frequent, the mouth and fauces dry and clammy, whilst the tongue is covered with a dark fur in the centre, and when much bile is secreted, with a yellow fur at its posterior part; or it is red and polished; the stomach is irritable, rejecting the mildest fluids, while an unceasing thirst prevails; if the disease proceed to a fatal termination, the discharge from the intestines consists of pus or putrid sanies, films of a membranous appearance, or sebaceous matter floating on the surface of liquid, denoting the existence of ulceration and gangrene, while the former symptoms are aggravated, great tormina and tenesmus ensuing. The nervous system also suffers severely: hiccough, cramps of the muscles, especially the gastrocnemii, strangury, great exhaustion of power, and even syncope take place; in the acute form of the disease, and especially in hot countries, death occurs in a few days, and indeed from the severity of the symptoms, unless relief be promptly afforded, and a rapid change induced, it proves fatal, under circumstances of a less alarming nature. The experience of European surgeons testifies the ravages it may commit even in temperate climates, and the necessity of the most ready and vigorous treatment. In very severe cases of dysentery, dissection exhibits the inner membrane of the great intestines thickened, and formed into small irregular tubercles of a white or yellowish colour, with the peritoneal and muscular coats also thickened; ulcerated or abraded patches, extending even to the small intestines, and in some rare cases (mostly in tropical dysentery,) the colon in a state of mortification, through which an extravasation of the fæces, into the cavity of the abdomen, has occurred; in addition to these appearances, marks of peritoneal inflammation are frequently observed.

Treatment.—"This must be regulated," says Dr. Gregory, "by a consideration, first of the tendency to inflammation which exists in the

mucous membranes of the intestines; secondly, of that apparently spasmodic contraction of the muscular fibres in contact with the diseased membrane, by which feces are retained; and thirdly of that morbid increase of irritability in the whole tract of the alimentary canal, which prevails in this, as well as in other affections of its mucous membrane." When the pain is severe, and the pulse strong, blood should at once be abstracted from the arm, taking care to regulate the quantity, from the probability of the present fever assuming a typhoid character, and also of the loss of blood that may occur from the bowels. The employment of purgatives, however, constitutes the most important part of the treatment in dysentery; in slight cases, not attended with much fever, a purgative in the morning, and ten grains of Dover's powder, (*pulvis ipecacuanhæ compositus*) in the afternoon, and repeated at bed time, with low diet, will effect a cure, but where the disease is violent, calomel as a purgative, is certainly advisable; a great difference of opinion has prevailed in the medical world, respecting the employment of this medicine in dysentery; Sydenham has left it unnoticed, confining his practice to the milder purgatives, and opiates; since his time, some practitioners have used it as a sialogogue, chiefly with the intention of acting upon the liver, the morbid condition of which organ they have presumed to be the primary cause of dysentery; whilst others have adopted it as a mere purgative, in order that it might act upon the secretions of the intestines, and diminish muscular action in the alimentary canal; the theory, that the liver is primarily engaged in dysentery has met with few supporters, although some of the facts recorded in its behalf are sufficiently strong, to justify the administration of calomel to such an extent (even scruple doses,) as to produce ptyalism, of course restraining its laxative properties by opium; but in the consideration that during such a state, its direct effect upon the intestines must be discontinued, and from the well established fact, that in the intestines the disease commences, and continues its fiercest action, we are warranted in deciding against its hepatic origin, and in treating it upon other principles. The use of calomel is doubtless great, as a cathartic of effectual power, and it may either be given singly or in combination with rhubarb, or ipecacuanha, adding castor-oil to aid its effects, and also emollient clysters. The antimonial class of medicines are also entitled to our attention in the management of this disease. Sir G. Pringle, in the fifth volume of the Edinburgh Medical Essays, proposed the glass of antimony, (a deutoxide of the metal, combined with sulphur;) others have recommended James's powder as the most convenient form, whilst the emetic tartar has been selected by a third party; it probably matters little which is preferred, or whether the use of the Dover's powder be allowed to take the place of all: a diaphoretic effect will be alike produced, and

provided that object be attained, the choice of the means is almost a subject of indifference. The exhibition of an emetic, at the outset of the disorder, will commence a diaphoresis which may afterwards be conveniently continued, as well by the use of antimonials or Dover's powder, as by a due care in the adjustment of clothing, and the application of a broad flannel swathe round the abdomen.

If, after proper fecal evacuations have been obtained, (and the use of cathartics must be steadily persevered in until they are produced,) the pain and diarrhœa continue, the use of opium is indispensable. In the severe and epidemic dysentery that prevailed in Dublin in 1822, Dr. Cheyne made an extensive trial of this drug, giving four or five grains at a dose: he describes it as arresting the progress of inflammation, diminishing agony, and sometimes proving of permanent benefit, in the most acute attacks. Sydenham had previously administered opium in the liquid form, not only as a sedative, but as a diaphoretic, to check that depression of spirits by which the disease is so frequently characterized, and to afford coolness and moisture to a parched and burning skin, adding, as auxiliaries for the last purpose, diluents, tepid injections, and an increased warmth of the bed; modern practice has combined a relaxant (usually the tartar emetic in small doses) with the opium, to insure its stronger diaphoretic action. A variety of other remedies have been proposed to meet the peculiar symptoms of dysentery, but it may be sufficient, in adhering to the best authorities, to lay down the following general rules in its treatment. In the early stage, accompanied with much fever, bleed, but with caution; then administer cathartics, either calomel alone, with rhubarb, ipecacuanha, or followed by the sulphate of magnesia until the fecal discharge returns; if the suffering continue, give opium both as a sedative and diaphoretic, increasing its power by the addition of relaxants.

Astringents and tonics are only permitted, when all inflammatory symptoms have subsided; kino, catechu, logwood, eascarilla, &c. have been recommended, but they fail in comparison with the mineral acids, and metallic tonics, especially when any flux of blood or morbid matter continues; of these, a combination of the nitric with the muriatic acid, in the proportion of two-thirds of the former to one of the latter, and the sulphate of zinc, the acetate of lead, or alum, may be preferred. Terebinthinate clysters, injections of diluted solutions of nitrate of silver, fermentations of the abdomen, with an infusion of tobacco, have all met with a frequent, and sometimes a successful trial, but the majority of cases will demand a compliance with the principles of treatment we have described.

Hitherto we have considered dysentery in its acute form; it now remains for us to allude to its *chronic stage*, which is the sequel of the for-

mer, and in many cases appears to be only a continuance of the diseased action previously established; it may, however, be connected with structural derangement, particularly ulceration of the mucous membrane of the bowels, when purulent matter will be detected in the evacuations, and an extreme degree of weakness and emaciation follow, until the patient is destroyed by the incessant discharge kept up: in such a condition the slightest irregularity of diet will aggravate the symptoms. Ulceration of the intestines will at all times heal with difficulty, but it is obvious that the healing process will go on most favourably when a light and unirritating diet is persevered in. A gentle action should also be kept up in the bowels, so as to prevent accumulation and distention; hence the necessity of occasional doses of calomel and rhubarb, castor oil, or any other mild laxative, when there is any considerable degree of griping pain; when the circulation is languid, and the constitution much weakened, the local action of these ulcers may be indolent, and capable of improvement by such medicines as promote digestion and give a tone to the system, as the decoctions of bark, myrrh, the balsam of copaiba, and other tonics, which have accordingly been administered, and with signal advantage. Where the evacuations are copious, and unattended with pain, dependant probably upon an irritable state of the mucous membrane, the consequence of a former acute attack, astringents, absorbents and opiates may be required, but in every case their effects must be watched, and their use discontinued, if they bring on tormina. In some instances small doses of calomel, of the blue pill (*pilula hydrargyri*, or of mercury with chalk (*hydrargyrum cum creta*) contribute to an improved appearance of the secretions of the intestines, and the occasional complication of dysentery with chronic hepatitis, will be an additional motive for the exhibition of mercurial alteratives.

On the subject of dysentery, consult Harty's Observations thereon;—Peimberton's Treatise on the Diseases of the Abdominal Viscera;—Dewar on the Diarrhœa and Dysentery of Egypt;—Huxham, Mosely and Johnson on Tropical Climates;—Gallap's Sketches of Epidemical Diseases of Vermont;—Bampffield's Treatise on Tropical Dysentery;—the 2d Vol. of the Med. Chir. Trans.;—the 3d Vol. of the Dublin Hospital Reports;—Dr. Mason Good's, and Dr. Gregory's works.

DYSMENORRHŒA, (from *δυσ*, with difficulty, and *μηνorrhœa*, the menses.) A difficult or painful menstruation. See *Uterus*.

DYSPEPSIA, (from *δυσ*, difficult, and *πεπρω*, to concoct.) Indigestion, which see.

DYSPNŒA, (from *δυσ*, difficult, and *πνεω*, to breathe.) Difficult respiration. This may arise from several circumstances, and may invariably be considered as a symptom of disease, rather than an original affection.

1. Difficulty of breathing is a symptom of *general fever*. The increased velocity with which the blood, during fever, passes through the great vessels of the lungs, disturbs their functions, and the natural consequence is dyspnœa.

2. It occurs as a symptom of the early stage of inflammation in the *mucous* membrane of the lungs and air-passages, and is therefore a *leading* feature in laryngitis, croup, severe catarrh, and the several modifications of bronchitis. It is attributable here to the *loaded* or congestive state of vessels in the affected membrane.

3. Difficult respiration is a symptom of inflammation in the serous membrane of the thorax ; probably, because by the free expansion of the lungs, the pleura is placed upon the stretch.

4. It is equally the result of deposition in the parenchymatous substance of the lungs, and is hence the most important of the early symptoms of tubercular phthisis.

When it results from causes of a more chronic kind, it may proceed from,

5. Preternatural secretion from the glands of the bronchia, or from their secreting mucous surface ; is sometimes habitual, and sometimes the result of accidental inflammation. In either case it creates dyspnœa, which is felt most oppressively in the morning, and is only relieved by the labour of long coughing.

6. Permanent dyspnœa is the natural consequence of malformation of the thoracic parietes.

7. It is a common attendant on hydrothorax, organic diseases of the heart, aneurism of the aorta, and other mechanical impediments to the free expansion of the lungs.

8. It may arise from an irregular spasmodic action of the muscles concerned in the function of respiration.

9. From the existence of disease within the head. A peculiar modification of difficult breathing, is a distinguishing feature of apoplexy. It is presumable, that in this case dyspnœa is owing to impaired function of the *par vagum*.

Lastly, dyspnœa has its origin, in a large proportion of cases, from disturbance in the functions of the abdominal viscera. Sometimes, as in the case of flatulency or swelled liver, this may be imputed to the mechanical obstruction thereby offered to the descent of the *diaphragm*. In other instances, as in that of worms, the difficulty of breathing is referable only to the principle of nervous sympathy.

DYSURIA, (from *δυσ*, difficulty, and *ουρον*, urine). A suppression of, or a difficulty in the discharge of the urine. See *Urinary Passages*, *disorders of*.

EAR, inflammation, and diseases of. See *Inflammation*, and *Deafness*.

ECCHYMOSIS—*Ecchymoma*, (from $\epsilon\chi\chi\upsilon\omega$, to pour out.) Extravasation, a soft, livid, or blue swelling, caused by the escape of blood into the cellular membrane from small vessels which have been ruptured by a blow, sprain, or contusion. Its absorption is readily promoted by the application of discutient lotions; and, if necessary, the use of purgatives.

ECSTASY—*Ecstasis*, (from $\epsilon\chi\chi\iota\sigma\mu\alpha\iota$, to be out of one's senses). A trance or delirium, resulting from attention to an object, on which the sufferer's hallucination constantly rests; it is frequent in nervous affections, and is contemplative, sublime, amorous, obscene, according to the subject of meditation.

ECTHYMA.—A pustular eruption. See *Cutaneous Diseases*.

ECTROPIUM or **ECTROPEON**, (from $\epsilon\kappa\tau\rho\epsilon\pi\omega$, to evert.) An eversion of the eye-lid. See *Eye*.

ECZEMA, (from $\epsilon\kappa\zeta\epsilon\omega$, to boil out). A vesicular eruption. See *Cutaneous Diseases*.

EFFUSION, (from *effundo*, to pour out.) The escape of any fluid out of the vessel or viscus naturally containing it, into another cavity, the cellular substance, or the surrounding parts; the term may also signify the morbid secretion of fluids from the vessels; thus we frequently speak of coagulable lymph being effused on different surfaces.

ELATERIUM—*Elaterii Pepones*. *The wild cucumber*. (*Momordica Elaterium*, a plant of the class *Monœcia*, and order *Syngenesia*). The dried sediment from the juice is usually employed—a violent drastic purgative, requiring great caution in its use; it has long been given in cases of dropsy in doses from one-eighth of a grain to gr. j.—The extract (*extractum elaterii*,) is generally preferred in practice, of which gr. ss. made into a pill with extract of gentian may be given every second or third hour, until the bowels have been well acted upon. The cathartic power of this substance is derived from a small portion of a very active principle called *elatin*.

ELDER FLOWERS and **BERRIES**. *Sambuci Flores et Baccæ*. (*Sambucus Canadensis*, vel *Vulgaris*, of the class *Pentandria*, order *Trigynia*). The flowers are diaphoretic and discutient, the fruit laxative and sudorific; the former may be used in fomentations, and to form a cooling ointment; the latter internally, the best form being the expressed juice of the berries, of which from $\mathfrak{z}\text{i}$. to $\mathfrak{z}\text{ij}$. may be taken daily; this medicine is occasionally resorted to in febrile diseases, rheumatism, gout, and the exanthemata.

ELECAMPANE ROOT—*Inulæ Radix*, (*Inula Helenium*, class *Syngenesia*, order *Polygamia Superflua*.) Tonic, stimulant, expecto-

rant, but little used. A peculiar vegetable principle has been extracted from it, called *Inulin*.

ELECTRICITY—*Electricitas*, (from $\eta\lambda\epsilon\kappa\tau\omega\rho$, the sun, on account of its brightness, or from $\epsilon\lambda\kappa\omega$, to draw, because of its magnetic power.) An extraordinary power of nature, producing the most remarkable phenomena, exerted in a minor degree by the application of science as a medical agent, in cases of paralysis, and severe nervous affections.

ELEMIGUM.—A name of Ethiopian origin. This resinous gum is procured from the *Amyris Elemifera*, a plant of the Spanish West Indies, of the class Octandria, and order Monogynia. Only employed in the preparation of ointments and plasters, as a stimulant and powerful digestive.

ELEPHANTIASIS, (from $\epsilon\lambda\epsilon\phi\alpha\varsigma$, an elephant,) so named from the legs of people affected with this disorder, growing scaly, rough, and very large at an advanced period, and having a supposed resemblance to the legs of an elephant. We have already described the tumid leg of hot climates, under the term of *Bucnemia*, to which this disease may be referred. The name of Barbadoes leg was restricted to it from the idea that it was only endemial in that island, but it has been known in India from time immemorial under the appellation of elephantiasis; in the Polynesian isles it is also indigenous, taking the name of yava-skin, as being supposed to originate from the use of the heating beverage, called yava. The term of elephantiasis, is erroneous as applied to the tumid leg, and arose from confusing the elephantiasis or elephant-skin of the Greeks, with the elephantiasis, or elephant-leg of the Arabians; the name is only properly given to the *cutaneous disorder* of elephantiasis, under which head it will be found; while the swelled leg is described under the name *Bucnemia*.

ELM, INNER BARK OF THE SLIPPERY.—*Ulmī Fulvæ Cortex*, (*Ulmus Fulva*, class Pentandria, order Digynia.) Demulcent, emollient, employed in catarrh, dysentery, &c., in the form of infusion or decoction, of which from \mathfrak{z} i. to \mathfrak{z} iij. may be occasionally taken. Externally, it is applied to burns, tumours, and cutaneous eruptions, particularly herpes, and lepra.

EMBRYOTOMY—*Embryotomia*, (from $\epsilon\mu\beta\tau\omicron\nu\omicron\nu$, a fœtus, and $\tau\epsilon\mu\nu\omega$, to cut.) The separation of any part of the fœtus in utero, in order to facilitate its extraction.

EMETICS, (from $\epsilon\mu\epsilon\omega$, to vomit.) May be arranged under two heads, those derived from the vegetable and those from the mineral kingdoms; of the former, ipecacuanha, squill, chamomile, mustard, white hellebore, and tobacco are the principal, and of the latter, the tartrate of antimony, the sulphates of zinc and copper, the sub-acetate of copper, ammonia, and its hydro-sulphuret,

EMMENAGOGUES, (from *εμμηνια*, the menses, and *αγω*, to move.) That class of medicines promoting the menstrual flux; they may be referred to four orders.

1. *Stimulating Emmenagogues*, as mercurial and antimonial preparations, principally adapted for the young, and those with peculiar insensibility of the uterus.

2. *Irritating Emmenagogues*, as aloes, savine, cantharides, and the ergot of rye; these are preferred in torpid and chlorotic habits.

3. *Tonic Emmenagogues*, as the preparations of iron, the cold bath, and exercise, fitted for the lax and phlegmatic.

4. *Antispasmodic Emmenagogues*, as assafoetida, castor, &c., suitable for delicate, weak, and irritable habits.

EMOLLIENTS, (from *emollio*, to soften.) Softening and relaxing applications, that relax the animal fibre, as fomentations with warm water, or the infusions of marsh mallows, chamomile, &c., the vapour bath, poultices, oleaginous substances, simple ointments, and opium.

EMPROSTHOTOSIS, (from *εμπροσθεν*, forwards, and *τεινω*, to draw.) A spasm of the muscles, keeping the body in a fixed position, and bent forwards, sometimes observed in Tetanus, of which however it is a rare symptom. See *Tetanus*.

EMPHYEMA, (from *εν*, within, and *πυον*, pus.) A collection of pus in the cavity of the thorax. It is one of the terminations of Pleuritis. See *Pleuritis*.

EMPHYSEMA, (from *εμφυσωω*, to inflate.) By this term is understood, a diffusion of air into the cavity of the thorax, and from thence into the cellular membrane. It may arise from a wound of the lungs, by the spicula of fractured ribs, from punctured wounds, which have a small external aperture, or from a wound which merely enters the thorax without injuring the lungs. It may also be occasioned by a dilatation of the air-vesicles, but this portion of the subject may be more properly considered under the article *Diseases of the Lungs*, to which the reader is referred. When emphysema occurs from the first mentioned causes, it may take place in two different ways; if the lungs be wounded, air may escape from thence into the cavity of the thorax, which may also receive an additional and probably a larger quantity through the external wound; should the lungs be uninjured, of course that cavity is filled solely through the medium of the latter, when the air, obtaining a passage during the vacuum produced by expiration, is again forced by the expansion of the lungs in inspiration into the opening existing in the parietes of the chest, and from thence into the cellular membrane, when it may extend to every part of the body, occasioning enormous swelling and puffiness; in those cases where an effusion of the air does not succeed, the diaphragm, mediastini, and opposite lung may undergo so great

a compression, as to threaten suffocation. The enlargement produced by emphysema, can always be distinguished from other swellings, by the crepitus or crackling noise produced on making pressure, and by the degree of distress that attends the affection. See *Wounds*.

ENCANTHIS, (from *ει*, and *καυθος*, the angle of the eye.) A disease of the caruncula lachrymalis. See *Eye*.

ENCEPHALOCÉLE, (from *εγκεφαλον*, the brain, and *κηλη*, a tumour.) Hernia of the brain. See *Hernia*.

ENEMA, (from *εινιμι*, to inject.)—*A Clyster*. A well known and valuable form of supplying the system with medicine and sustenance, under certain states of disease. Enemata are calculated to fulfil the following indications.

1. *To promote the tardy operation of a cathartic, or to evacuate the bowels*, when medicines cannot be retained in the stomach, or where the system is too feeble to admit of their safe administration; the stimulus of distension is thus obtained, and warm water simply may be made the means of overcoming obstructions that had resisted the action of purgatives.

2. *To induce extreme relaxation*, when it is desirable to overcome muscular resistance, or render the animal fibre lax and yielding, which is best effected by an infusion of tobacco, the common enema in cases of strangulated hernia.

3. *To produce astringent and anodyne effects*. Common starch, with the addition of tincture of opium, is the most common and convenient form. The injection of cold water will sometimes act as a powerful astringent, and also afford instantaneous relief, in the suffering from hæmorrhoids.

4. *To destroy ascarides*, by bitter decoctions.

5. *To act as an emollient fomentation*, in inflammatory attacks.

6. *To convey nutriment*, in those diseases where obstruction of the passage to the stomach is so great as to render access to that organ impossible, such as occurs in lock-jaw, diseased œsophagus, &c.

In the administration of enemata, for the fulfilment of any of the last five indications, it is obvious that the stimulus of distention should be avoided; an opiate clyster for instance, should not be of greater bulk than that of three or four ounces of fluid, and the same precaution is necessary in the enema for the cure of ascarides, otherwise the gut will suddenly contract and expel its contents, before time has been allowed for their operation: the longer the rectum retains the injection the more certain will its effects be. The proportions of liquid necessary for the different stages of life, under ordinary circumstances, may be thus stated. An infant at birth, or soon afterwards, requires about one fluid ounce; a child between the age of one and five years, from three to four fluid

ounces ; a youth of ten or fifteen, from six to eight, and an adult, twelve fluid ounces.

With respect to the dose of the active ingredient of a *Lavement*, it may be estimated as triple of that taken by the mouth.

ENEURESIS or **ENURESIS**, (from *ενουρεω*, to make water.) An incontinence, or involuntary flow of urine. See *Urinary Passages, diseases of*.

ENTERITIS, (from *εντερον*, an intestine.) Inflammation of the intestines, which see.

ENTEROCELE, (from *εντερον*, an intestine, and *κηλη*, a tumour.) An intestinal rupture or hernia. See *Hernia*.

ENTROPIUM, (from *εν*, and *τροπω*, to turn.) A disease of the eyelids, in which the eye-lashes and lids are inverted towards the bulb of the eye. See *Eye*.

EPHEMERA, (from *επι*, upon, and *ημερα*, a day.) The fever of a day. See *Fevers*.

EPIDEMIC—*Epidemicus*. This term is applied to diseases that attack many persons at the same season, and in the same situation ; thus putrid fever, the plague, dysentery, &c., are often epidemic.

EPILEPSY—*Epilepsia*, (from *επιλαμβάνω*, to seize upon, from its sudden attack.) A disease of the nervous function, consisting of a succession of paroxysms of convulsion, with insensibility. It is both idiopathic and symptomatic, and may arise either from mental or corporeal causes ; the phenomena of the paroxysm are in all cases nearly the same, increasing in violence by the repetition of the attack, and terminating alike, either in mania or death, if curative efforts have been unsuccessful ; where the fit comes on abruptly, without any previous warning or evident excitement, except in some instances, a slight giddiness, the predisposing cause is probably seated in the head itself, consisting of some morbid structure or secretion in the bones, tunics, or substance of this organ, as tubercles, exostoses, caries, abscesses, or natural misconstruction of the whole or of particular parts ; injuries from external violence, hydatids, &c. ; where the precurse symptoms commence with the peculiar sensation of the ascent of a cold creeping vapour from some particular part of the body, frequently called the "*aura epileptica*," the disease is connected with some morbid action of a remote part ; and where, at the commencement of the fit, many of the limbs remain in a state of fixed rigidity, whilst others are thrown into the most convulsive action, an hereditary disposition, sudden fright, especially during pregnancy, or severe mental emotion, are probably the causes of its occurrence. With the exception to which we have alluded, epilepsy, in its direct attack, is characterized by a sudden loss of consciousness ; the patient falls to the ground, (from whence the old

name of the falling sickness was applied to the disease) and the convulsive agitation of the body becomes violent. The eyes are fixed and reverted, and the pupils permanently contracted; the teeth gnash against each other; the tongue is thrust forward and frequently bitten; the whole face swells, becomes distorted, red, livid or black, while the lips project, and are covered with the froth, which is ejected a considerable distance from the mouth. The breathing is irregular and laborious, the pulse generally small and irregular, with occasional variations, becoming hard and unequal; the position of the sufferer is varied, and sometimes very rapidly, from a tetanic rigidity, to a violent and universal convulsion. Involuntary discharges of feces, urine and semen, in some cases accompany the paroxysm, together with profuse perspiration, vomiting, and bleeding from the nose; the hands are strongly affected, and open and shut with excessive violence; and it has been remarked that the firm closure of the thumb in particular, is a common circumstance during the paroxysm. The fit may last from a few minutes, to a quarter, or even half an hour; on its cessation, the patient remains motionless, and apparently in a profound sleep, from which he recovers by degrees, and without any recollection of what has passed; it leaves him weak and exhausted, and for the rest of the day, or for a day or two afterwards, he is languid, oppressed, and susceptible of the slightest annoyance. The periods of recurrence of epileptic attacks are very uncertain; at the first development of the disease, the intervals are long; perhaps two or three months; but as it becomes more deeply rooted in the system, the fits return with a corresponding frequency, until the patient scarcely passes a day without one. It was formerly presumed that epileptic attacks could occur several times during the same day; but from accurate investigation, it would appear that genuine epilepsy is not so frequent, and that those causes which have led to the presumption, were in reality of an *hysterical* nature. Epilepsy may take place at all hours; but more commonly during the night than in the day, or shortly after waking at an early hour of the morning; this peculiarity merits some attention, from the probability of the conclusion, that the state of the brain during repose, when a considerable accumulation of sensorial power takes place, may be favourable to the development of the paroxysm, in individuals subject to its recurrence. In whatever way epilepsy manifests itself, it soon occasions serious injury to the system; the mental functions gradually become impaired, the memory fails, and a state closely verging to idiotism is at length brought on, which is frightfully apparent by the vacant and stupid expression of the countenance; hydrocephalus in children, apoplexy in adults, mania as before mentioned are too frequently its successors, where the sufferer is unfortunately spared through repeated attacks. The examination of epileptic patients

after death, has afforded materials for dispute, rather than information that might instruct us in the management of the disease ; the numerous researches of the celebrated Wenzel, led to a belief that the organ chiefly affected was the cerebellum, as that writer declared that " he never opened an epileptic patient, without finding the cerebellum diseased in some way or other." Dr. Cook, on the contrary, in his work on " nervous diseases," declares that in many instances of this disorder, no marks of disease whatever could be detected, either within the cranium, or in any other part of the body. Dr. Prout, in a frequent examination of epileptics at Paris, asserts that in every case, worms were found in the intestines, whilst some writers have attributed epilepsy to the same causes that induce mania, from which they have scarcely separated it. The deductions of writers from their own observations, may only confirm us in the justness of the arrangement in which we proposed to consider epilepsy ; we have explained the causes from whence it may arise, and as they are sufficiently diversified, so we may expect to discover as essentially different pathognomic signs, and appearances after death. In the various public and charitable institutions in Europe for the reception of lunatics, epileptic patients are generally very numerous ; in one hospital in Paris, out of 289 epileptic women, 80 were maniacs, and 56 imbeciles ; in the large institution, the house of industry, in Dublin, there are also a very large number of patients under this disease ; some in a state of confirmed madness, others in a deplorable condition of mental weakness. The same facts prevail in the Austrian and German institutions, and thus it clearly appears that the prevailing termination of the disease is lunacy. From the same source of information, it is evident that females (and generally after seven years of age) are more subject to it than men ; and that in numerous cases, the origin of the disease may be traced to the disturbed functions of the uterus.

The *treatment* of epilepsy, will generally depend upon its cause ; during the fit, but little can be attempted—the condition of the patient rendering the administration of remedies most difficult, if not altogether impossible. Our aim must therefore be, to remove, as far as possible, the exciting cause, and to allay the irritation of the nervous system, that has become habitual. Where plethora manifestly exists, venesection may be practised with reasonable hopes of success ; but the addition of a free and steady use of cathartics must never be omitted. Of these, colocynth, gamboge, the neutral salts and calomel, may be used, never disregarding the last, when any tendency to visceral congestion prevails ; when worms are suspected, the oil of turpentine, either with or without castor oil, should be preferred, first as an active purgative in doses of $\mathfrak{z}\text{i}$. to $\mathfrak{z}\text{iss}$. (to an adult, and $\mathfrak{z}\text{ss}$ to children,) and then in

smaller doses as an alterative, and from its property of allaying the irritable state of the nervous system, and producing regular evacuations. Cold affusion has been highly recommended in the German schools, both during the paroxysms and in the intervals; but this remedy must be used with great caution, for even its warmest admirers prohibit it when the patient is subject to gout, rheumatism, diarrhœa, &c. The use of emetics, once so common, has been nearly relinquished; they appeared to exert but little influence on the disease. Externally, stimulants have met with an extensive trial; the spine has been rubbed night and morning with preparations of ammonia, camphor, cantharides, and the tartar emetic ointment; setons and issues have been applied to different parts of the body, and also the potential and even the actual cautery, and the moxa. These applications have frequently been so successful as to justify their trial, either applied to the head, when the cause of the disease is supposed to proceed from thence, or to the extremity or other part, from whence the *aura* seems to ascend. The attachment of a ligature above the part from which this *aura* ascends, was first adopted by Professor Zœffler of Altona, and has frequently been tried since, with considerable advantage. When the irritation is seated in the uterine system, as manifested by a scanty and laborious menstruation, and the peculiar periods at which the fits recur, recourse must be had to the warm bath or semieupium, stimulating enemata, relaxing medicines, and antimonial diaphoretics.

A remarkable cure of epilepsy was performed by Dr. Rogers of New York, by elevating a portion of the frontal bone, which had been depressed for fourteen years. It is but seldom that the seat of organic derangement within the head, whether congenital or accidental, can be detected; and if it be ascertained, it may not be within the reach of an operation; where such, however, is the case, relief may be afforded, either by raising any depressed, or by removing any morbid portion.

The general irritability of the nervous system has been attempted to be overcome by sedatives and tonics; of the former, camphor, cajuput, valerian, hyoseyamus, stramonium, opium and digitalis, are principally employed. Of these medicines, stramonium has probably experienced the fairest trial; at one time it was considered almost in the light of a specific against epilepsy, and although its character has considerably suffered in more enlightened days, it yet claims a considerable number of admirers; the influence of this herb in epilepsy, however over-rated, has unquestionably been recognized in numerous cases; it may be exhibited in doses of from two to eight grains in the twenty-four hours. Where hyoseyamus has been prescribed, it has been usually in combination with aromatics, commencing with grain doses, increased to four or five grains, twice a day. Digitalis and the other sedatives have also

received a fair, and, as it would appear, a successful trial, in the hands of some practitioners.

The tonics recommended have been both vegetable and mineral; the mistletoe, no matter from what tree taken, was once held in great repute, but it is hardly necessary to add, that at the present period, its virtues are ridiculed, and its employment disregarded; the same may be also asserted of the leaves of the orange tree, and indeed of the whole class of vegetable tonics. The mineral tonics are entitled to far more consideration; the preparations of zinc and of arsenic, were formerly given, but of late years, those of copper and silver have been greatly and justly preferred. Of copper, the best preparation is that of the *euprum ammoniatum*, or ammoniated copper, and the "Edinburgh Medical Commentaries," record numerous cases of its efficacy; the simplest mode of administering it, is in the form of pills made up with crumbs of bread—the patient commencing with half a grain of the metallic salt every night, and afterwards doubling the quantity, if his stomach will bear it. The best, and indeed the only preparation of silver used, is the nitrate or lunar caustic, and its exhibition in epilepsy, was known as early as the commencement of the seventeenth century, although until within a very few years, it had yielded in favour of a number of other remedies that were supposed to exercise a more determined effect in the management of the disease. Dr. Powell tried the virtues of this salt in St. Bartholomew's Hospital upon a very extensive scale, both in the form of pills, and in solution, using mint-water for the solvent, as overcoming, in a great degree, its nauseous taste; most of the cases upon trial, being young persons of both sexes, from nine to fifteen years of age: the dose at first consisted of not more than half a grain or a grain, (either in substance or solution) given every four hours, but the quantity was gradually increased to three and four grains, repeated at the same distance of time; the utmost success attended this practice, and a similar result has followed its administration by other practitioners. The old complaint of the purgative and griping qualities of this salt, seems not to have been realized in the practice of these gentlemen, although in some instances it has been given in fifteen grain doses, and the only inconvenience that attends its continued use, appears to be the blue colour it imparts to the surface of the body, and which will continue sometimes for two years afterwards; but as this circumstance will hardly forbid its employment in combating a disease of such a distressing nature as epilepsy, we are perhaps justifiable in recommending it as the best tonic ancient practice has devised, or that modern experience has sanctioned. The preparations of iron, and especially the carbonate, have been also considerably in vogue; an occasional cure has been produced by the carbonate of iron in doses of \mathfrak{ss} . three times a

day, and as it is in all respects a less hazardous medicine than the nitrate of silver, a trial may be given with propriety, before we resort to the more powerful salt. It must in all cases, however, be remembered, that epilepsy has numerous exciting causes, some removable, and others permanent. The use of purgatives or the lancet may do more than the most powerful tonics, while these, in turn, may exercise the most favorable influence over the disease, when the former are of little avail. Experience will enable us to detect the cause where it is possible to discover it, and to that our first attention must be directed, with an effort to its removal; that accomplished, the disease, where it is not firmly established, will sometimes yield at once, and at others require all our care in altering that morbid condition of the nervous system, on which it depends: too often all our skill will be useless, even in checking the approach of a paroxysm; but these melancholy instances must not impair our confidence in remedies that we find useless in their particular treatment: the medical records of the day furnish abundant proofs of the value of some that we have named, and to those we refer with a high opinion of their excellence, concurring in the testimony of those physicians, who, having given them a fair and extensive trial, have been enabled to recommend them to others. For further information on this disease, see the works of the authors quoted in this article: Dr. Mason Good's Works;—Dr. Gregory's Practice of Physic;—Prichard, on Nervous Diseases;—Hamilton on Purgatives;—the 12th Vol. of the Med. and Chir. Trans;—Johnson's Medical Remarks;—the 19th Number of the Edinburgh Med. and Surg. Journal, and others.

EPIPHORA, (from *επιφρω*, to earyr foreibly.) *The watery eye.* An involuntary flow of tears, or a superabundant discharge of a serous or aqueous humour from the eyes. See *Eye*.

EPIPLOCELE, (from *επιπλοον*, the omentum, and *κηλη*, a tumour.) *An omental hernia*, or that form of hernia, where the contents of the tumour consist of omentum. See *Hernia*.

EPISTAXIS, (from *επισαζω*, to distil from.) *Bleeding at the nose.* See *Hæmorrhage*.

EPISTHOTONOS (from *επισθεν*, forwards, and *τεινω*, to extend.) A spasmodic action of the muscles, drawing the body forwards, observed in tetanic convulsions. See *Tetanus*.

ERETHISMUS, (from *ερεθίζω*, to irritate.) Increased sensibility, and irritability.—A term variously applied by modern writers, but chiefly adopted by Mr. Pearson, in his work on *Lues Venerea*, (page 156,) to a peculiar state of the system, induced by the use of mercury acting as a poison, and called by him, *mercurial erethismus*. It is recognised by a great depression of strength, anxiety, vomiting, trembling, intermitting pulse, pallid countenance, palpitation, and a general sense of chilliness;

the tongue however is not furred, nor are the vital and natural functions much disturbed. The mercury should be immediately discontinued, and the patient removed to a dry and free atmosphere, using camphor, the volatile alkali, decoction of sarsaparilla, &c. and above all avoiding any sudden exertion or excitement, which in such an irritable state of the system might prove fatal.

ERGOT OF RYE—*Secale Cornutum*—*Spurred Rye*. A parasitic fungus, obtained from the secale cereale, or common rye, (class Triandria—order Digynia.) The presence of this substance in rye had led to some inquiries into its nature, from its deleterious effects upon the poor, who, in various districts, made use of this description of corn as an article of constant diet, but its use in medicine was not discovered until 1807, when Dr. Stearns, of the state of New-York, pointed out its peculiar properties to the medical public; since then, it has met with great attention, and been used both in America and Europe with signal success; it acts specifically, and with great certainty on the gravid uterus, exciting powerful contractile action of that organ. In cases of lingering labours or retained placenta, its administration has frequently occasioned a rapid birth, or a speedy expulsion, and the best accoucheurs of the day now resort to it, in spite of the ignorant prejudice that prevails in some minds against its employment; an objection has been raised, that in assisting the mother, it is apt to destroy the child, from the violence of action produced; but the experience of those who have given it a fair trial contradicts the assumption, and establishes its benefit in many instances, where it supersedes instrumental assistance, and is certainly not more unfavourable to the fœtus, than the lingering condition of the mother which it relieves; perhaps, however, its chief excellence is in the expulsion of the placenta, when that body is retained beyond the usual time, and the action of the uterus has ceased. Ergot readily parts with its active principle to water, and the readiest form of its exhibition is by infusion; from half a drachm to a drachm may be immersed in two ounces of boiling water, and after soaking for half an hour, half the quantity administered, and the remainder an hour afterwards if necessary; if the substance be preferred, gr. x. may be taken every ten minutes until its action on the uterus is manifested.

In cases of amenorrhœa, it has likewise been given where the usual emmenagogues have failed to restore the catamenia, and by some practitioners in very considerable doses. In the third number of the Journal of Science, Dr. Bigelow, in an article upon the use of ergot, notices instances where physicians have given a drachm every day at first, increasing that quantity to an ounce, to the perfect relief of their patients, and without subjecting them to any ill effects from the potent action of the medicine. In amenorrhœa, an affection frequently so difficult to re-

lieve, the ergot when administered with judgment, may be regarded as a most efficient remedy, and merits a trial from the strong testimony on record of its excellence. A large dose produces nausea, vomiting, and stupor, to relieve which, active stimulants should be administered, after the bowels have been emptied.

ERRHINES, (from *ερ*, in and *ριν*, the nose.) That class of medicines, which topically applied to the internal membrane of the nose, excite sneezing, and increase the secretion; such as tobacco, hellebore, euphorbium, ipecacuanha, asarabacca, &c.

ERUPTIONS in children. Of the many different kind of eruptions in children, perhaps the greatest part depend on acidity, irritating matter in the primæ viæ, teething, and possibly some are efforts of nature to throw off something acrid, which might otherwise be hurtful to the constitution.

Of the red gum. This appears in small red spots on the face, neck, and now and then over the whole body; sometimes they are in patches, at others in small pustules, containing a limpid or purulent fluid. It requires nothing but an occasional dose of magnesia: should it suddenly recede, producing sickness and vomiting, warm cordials and the warm bath will be necessary.

The crustea lactea is seen about the head, face, and mouth, in the form of large, ill-looking scabs, pouring out an ichor, which causes much itching, is harmless, and leaves no scar—often departs when the front teeth are cut, and looks not unlike the small-pox. It may be treated with mercurial purges, alteratives, absorbents, application of saturnine washes and ointments, and blisters behind the ears. There are other rashes, not differing materially from the preceding, except one, which puts on the appearance of itch, and comes out about the arms and thighs. The sulphur-ointment and opening medicine, joined to a light diet, will remove it. If the milk evidently disagree with the child, it should be weaned, or another nurse provided. Consult Drs. Armstrong and Underwood.

ERYNGO ROOT, (*Eryngii Radix*.) The sea-holly or eryngium maritimum, a plant of the class Pentandria, and order Digynia. Diuretic and expectorant, but exceedingly weak in its operation, and therefore seldom used.

ERYSIPELAS, (from *ερνω*, to draw, and *πelas*, adjoining, so named from the neighbouring parts being affected,)—*St. Anthony's Fire*. This is one of those inflammations denominated specific. (See *Inflammation*.) It is characterized by a diffused redness and swelling of the part, without throbbing, a burning or itching pain, and frequently vesications and fever; a white spot is left upon pressure, which becomes red again when the finger is removed. The skin has a shining appearance, feels

as if it were slightly thickened, and whether vesications form or not, the cuticle peels off on the decline of the inflammation. The appearance of vesications in this affection, led Dr. Willan to include it in the order of *Bulles*, in his classification of cutaneous diseases, but as they are not constantly present, the propriety of the arrangement may be questioned. M. Desault has described erysipelas under three varieties. I. *Phlegmonous*. II. *Bilious*. III. *Local*; a division founded on close observation, and sanctioned by most practitioners since.

In the phlegmonous erysipelas, the skin is more raised than in the other species, the swelling is harder, deeper, and of a darker colour, while the integuments possess a slight degree of tension, with sharp pain, and *occasionally* a sensation of throbbing; it usually attacks one side of the face, or one of the extremities, a smart fever usually accompanying its approach; in the early stage, the skin and tongue become dry, and a violent sense of thirst prevails, the pulse being full and hard: in a few days the disease generally yields, if it have been treated by bleeding and an antiphlogistic regimen, the tongue becomes moist, a degree of bitterness in the mouth, and nausea are complained of, and that which has been phlegmonous, now appears with the characters of the milder or bilious erysipelas: when, however, a contrary result ensues, and the affection resists every attempt to subdue it, the inflammation gradually extends to the surrounding cellular substance, the coagulating lymph, largely secreted, becomes freely effused therein, and as suppuration occurs, the matter not being bounded by adhesions, becomes blended with sloughs under the integuments, communicating a singular feeling to the touch, not unlike crepitation. The discharge is very offensive, and consists of a purulent secretion, mixed with sloughs; the fever, instead of the inflammatory type it assumed before, now becomes typhoid, which either terminates fatally, the affected parts falling into a state of mortification, or subsides about the eleventh day, the crisis being marked by copious evacuations from the skin and kidneys, while the abscess puts on a better appearance, and discharges a more healthy matter. When phlegmonous erysipelas attacks the head, it is generally marked by peculiar symptoms, being preceded by cold shiverings, pain about the region of the heart, drowsiness, and slight delirium; the swelling appears about the second night or third day of the fever, on the forehead, cheeks, nose or eye-lids, and is first of a bright red colour, which changes to a livid or yellowish hue; a burning heat and pricking sensation, with sometimes a troublesome itching, is complained of; the surface of the tumour is without hardness, tension or throbbing, and thus it remains until the fourth or fifth day, when vesications, filled with a transparent serous fluid, arise, which burst in twenty-four or thirty-six hours, frequently excoriating the neighbouring parts. If the disease take

the most favourable termination, the vesications rapidly dry up, the cuticle peels, and the scabs that succeed soon fall off; in other cases, the ulcerative process may put on a gangrenous appearance, and the parts become mortified, when a considerable loss of substance will be the consequence, if life even be preserved under the attack. The greatest danger in this variety of erysipelas, is in a metastasis to the brain, occasioning *phrenitis*, which of course must be met by the most active treatment. (See *Inflammation of the Brain*.)

II. *Bilious Erysipelas*, is that form of the disease in which the symptoms are the mildest; the name would indicate a different character in all its stages, but when we consider that bilious may run into phlegmonous erysipelas, or that phlegmonous may subside into this variety, it is evident that the same cause may produce both, and that the difference rather arises from the nature of the circumstance producing it, or the condition of the system in which it occurs; it varies however considerably, in its symptoms, from the phlegmonous species; towards the period of its invasion, the appetite is lost, the mouth has a remarkably bitter taste, great nausea is experienced, and the tongue is moist and covered with a yellow mucus; bilious vomitings will occasionally take place, the patient is weak and languid, affected with wandering pains and considerable heat, but without much thirst or dryness of skin; the fever is sometimes violent, and accompanied by shiverings and pains in the head, vesications ensue as in the former instance, and its termination when favourable is similar, with every symptom of course greatly lessened.

III. *Local Erysipelas*.—This form of the disease might perhaps, more properly, come under the head of *Erythema*, as it never proceeds to vesication, and generally arises from local injuries; the symptoms, however, with these exceptions, closely resemble those of the second variety. There are yet two kinds of Erysipelas not included in the classification of Desault. *The Universal* and *the Erratic*; the first is very rare, but is subject to frequent relapses; it will attack nearly the whole surface of the body, but generally without much violence: its periodical return has been noticed by writers, particularly in chlorotic women, at the period when the menses should flow, and also in men of a relaxed habit, at the time of the vernal and autumnal equinox. *The erratic kind* usually commences its attack in the face, and spreads in succession to other parts; in infants, when it is denominated *Erysipelas Infantile*, it usually appears first at the navel, from whence it extends to the sexual organs, when the inflammatory blush soon assumes a livid hue, sometimes surrounded with petechiæ, and the cuticle soon separating and exposing a foul and ulcerating surface, which rapidly passes into a state of gangrene,

A more general division of erysipelas may be made in describing it either as *idiopathic* or *accidental*, in which the phlegmonous, bilious, and local varieties of Desault may be included, and this arrangement will probably prove of more value in practice. The exciting causes of the former, are perhaps not very well understood; in some persons we find a strong tendency to this kind of inflammation, and in them it is brought on by very trifling circumstances; this disposition appears occasionally to be hereditary, and some authors have positively laid down the principle of its transmission from one generation to another, but their records are not sufficiently strong to confirm such a law; its prevalence in some constitutions may perhaps be attributed to a peculiar organization of the skin, and hence may arise its frequency among females. As an inflammatory disease, it might be reasonably expected to attack the robust and plethoric in preference, but as an instance of its specific nature, it rather affects the debilitated, who are weakened by previous disease, a long residence in a hot climate, unwholesome diet or bad air; its immediate causes are usually cold, intemperance, suppressed perspiration, and in the words of Dr. Good, "the other common excitements of fever operating upon an erythematic diathesis, and producing, therefore, this peculiar efflorescence in connexion with the febrile attack, while, in *almost every instance*, there is a diminished vascular action." *In the accidental variety*, the causes may be, long exposure to the heat of the sun, or of a strong fire, the action of various vegetable, mineral, and animal poisons, or the consequence of wounds, confusions, fractures, the stings of insects, &c. Under all these circumstances, which in fact are analogous to those occurring in the varieties of the disease described by Desault, the erysipelas may at first be of a phlegmonous character, and gradually subside into the bilious kind; or it may commence with the symptoms of the latter, and terminate in those of the former, while the purely local affection may either run into the phlegmonous erysipelas, or end by resolution; so likewise of the universal and erratic forms of the disease, which may assume a varied nature, according to the peculiarities or powers of the system in which they are developed.

The contagion of erysipelas is a subject that has invited much inquiry, and provoked much discussion; without entering into the subject, we may express our opinion in accordance with some of the authors who have entered into the controversy, that in general, erysipelas is not of a contagious nature, and that when it is so, it is owing to a defective or an ill-regulated system of ventilation; hence we find this character attached to it chiefly in hospitals, jails, or in large families of the poor, who are confined within a small space; an evidence has been sought in favour of the contagious properties of the disease, from the members of the same family being frequently attacked in succession, but it appears to have

been forgotten, that in all probability each sufferer was exposed to the same exciting cause, and probably shared in the peculiar temperament that favoured its first approach. However the subject of contagion may be disputed, the epidemic nature of erysipelas may be admitted without a doubt; that the disease prevails at certain seasons, and under certain circumstances of the atmosphere, is well known, but what precise season, or what positive condition of the air is necessary for its existence we know not. To illustrate the point that erysipelas is epidemic, one remarkable case may be noticed, that occurred in the practice of Dr. Bartlett in Nova Scotia; the disease had been very general for some time without any probable cause for its appearance, when a man in apparently perfect health, received a slight blow with a whip across the face, in a quarrel with another, and erysipelas immediately ensued, of course, of the local kind, became phlegmonous, then gangrenous, and at length destroyed the patient; this man was healthy before, the blow was given at a time when the disease prevailed, and he ran through its varieties, and fell a victim to the epidemic that prevailed.

Treatment.—This is necessarily as varied as the nature of the disorder: the old practitioners in considering that erysipelas was nothing more or less than an inflammation, proposed the use of the lancet *in every case*, whatever might be the condition of the sufferer; at present, venesection is limited to those instances where congestion is apprehended or has taken place, and particularly in the head, when prompt and perhaps repeated blood-letting is required; the employment of leeches upon an erysipelatous surface has been as much condemned as venesection was once praised, and Dr. Good even asserts that leeches always exasperate the efflorescence; that this is not the fact experience daily proves, for in some of the English and Irish hospitals they have been applied with the utmost success, and so far from increasing the redness, have diminished it, together with every unfavourable symptom; this, to some, may appear a paradox, when it is admitted that in some individuals, the application of leeches will bring on the affection, when employed for the cure of another disease they are intended to remedy; such is however the fact, that they have been used with the most signal benefit, and in some of the most desperate cases; the experience of Lawrence and Latta justify these assertions, and entitle them to be acted upon by the profession.

The exhibition of bark, after the administration of laxatives, was also at one period a favourite mode of treatment, and Dr. Fordyce even ventured to give it in the most inflammatory stages, in doses of a drachm of the powder every hour. In the supposition that erysipelas is always connected with vascular debility, Dr. Good recommends the tonic and stimulant classes of remedies, but if we view the disease as a local affec-

tion of an inflammatory nature, we must be somewhat sceptical of the reasons for such practice. In slight cases, a few doses of laxative medicine, and the application of a cooling lotion to the part will be sufficient to promote a cure, and bark may be then given with more propriety than in the early stage; the sulphate of quinine is doubtless the preparation that would be preferred, and where, as in some very debilitated habits, it is necessary to employ it while the efflorescence continues, it is not only the most convenient, but the least offensive form in which bark can be administered. In the bilious erysipelas, Desault gave in the first instance a grain of tartarized antimony in a large quantity of fluid, which in general produced no other effect than an increase of the insensible perspiration and urine; this practice is still frequently adopted, and with the most favourable results. The same great surgeon always used the lancet in phlegmonous erysipelas, and then, as before, resorted to the nauseating drink. An emetic has been recommended at the commencement of the disease by some writers, and perhaps with propriety; if erysipelas occur from the action of deleterious food, of course such a practice is alone to be adopted, with a view of removing the offending matter. The custom of dusting erysipelatous surfaces with flour, starch, or chalk is decidedly bad; when the fluid of the vesications oozes out, crusts are formed with the concreting liquid that keep up the old and create fresh irritation; Dr. Willan judiciously reprobates this practice, and recommends instead, a gentle fomentation of the parts with a decoction of elder-flowers or poppy heads, or the application of the diluted liquor ammoniæ acetatis. Mr. Pearson even advises the use of poultices to the surface, either made of bread or linseed meal. In accidental erysipelas, so long as the efflorescence is trifling, and the symptoms purely local, cold lotions and an antiphlogistic regimen are alone demanded, but all frigid applications are only justifiable so long as the disease continues in its simplest form, which is generally the case, when it succeeds to the sting of small insects or a slight injury from acrid or hot substances. In the universal variety, warm bathing, aperient medicines, and small doses of the acetate of potass, will be required, while in the erysipelas infantile, compresses wrung out of camphorated spirit, may be frequently applied to the navel, and the parts to which the inflammation has extended, giving at the same time aperients and emollient clysters, and where the strength fails, slight quantities of aromatics and cordials. Where erysipelas assumes an *œdematous form*, all evacuations should be very sparingly procured, with the exception of diaphoresis, which may be encouraged by antimonial s, soothing the pain and irritation, by doses of the æther sulphuricus, camphor, opium, &c.: if the disorder seem to shift its situation to the head, blisters must be applied between the shoulders, to the head or legs without delay, and

the strength of the patient be supported by tonic, especially the sulphate of quinine, aromatics, and wine.

In those cases of phlegmonous erysipelas, where the inflammation continues unabated beyond the seventh or eighth day, suppuration is to be apprehended; here Boyer applies emollient poultices and fomentations, and upon a fluctuation becoming evident, makes an incision sufficiently large for the discharge of the matter: this treatment by incision has been carried to a far greater length in England; from the observations of Mr. Copeland Hutchinson, a naval surgeon, it appears that sea-faring men are very liable to phlegmonous erysipelas upon the lower extremities, which he attributes to the continued action of the salt water, and the friction of their long coarse trowsers; in a great number of these instances gangrene quickly ensues, and the consequence is the loss of many lives and limbs. To remedy these evils the plan of Mr. C. Hutchinson has been to make several free incisions with a scalpel on the inflamed surface in a longitudinal direction, and down to the muscles, as early in the disease as possible, these incisions being about an inch and a half in length, two or three inches apart, and varying in number from six to eighteen; this practice is said to give relief to the tense skin, to form channels for the future escape of fluid, and to unload the gorged vessels of the part. Mr. C. Hutchinson applies fomentations, or saturnine lotions afterwards, the former to the sores, and the latter to the surrounding surface; other surgeons, and Mr. Lawrence in particular, have followed the example of Mr. Hutchinson, and report most favourably of the plan of treatment; in some interesting discussions that have taken place in the London Medical Societies, the question has been freely canvassed, and although there are yet many opponents, the principal of whom is Mr. Samuel Cooper, it appears to be rapidly gaining ground, and finding its way from hospitals to private practice in England. Incisions are not confined to the extremities, but are freely made in the suppurative stage, should erysipelas attack the eye-lids, or at its commencement, when a phlegmonous character is detected in an erysipelas of the scalp, from the effects of a severe wound. It will be thus perceived how many modes of treatment of this affection are at the command of the physician, all recommended by sufficient authority to influence his judgment; where, however, opinions are so contrary, much must be left to his discretion, and in a tolerable practice, experience will soon teach him what plans to prefer, and what practice to reject.

On the subject of erysipelas, the following works may be consulted:—Desault's *Parisian Chirurgical Journal*, vol. 2nd.;—Pearson's *Principles of Surgery*;—A. C. Hutchinson in the 5th vol. of the *Med. and Chir. Trans.*;—W. Lawrence in the 14th vol. of the same work;—

Bateman's Practical Synopsis of Cutaneous Diseases ;— and Boyer's *Traite des Maladies Chirurgicales*, tome 2nd., &c.

ERYTHEMA, (from *ερυθρος*, red.) An inflammatory redness of the skin, unaccompanied by any swelling, vesication or fever ; circumstances which distinguish it from erysipelas. (See *Cutaneous Diseases*.)

ERYTHEMA MERCURIALE. This disease remained unnoticed until about sixteen years ago, when it was pointed out by Drs. M'Mullin, Moriarty, and others, in Dublin. Mr. Pearson, however, says he had observed it for several years previously. It generally makes its appearance about eight or ten days after the mercurial course has commenced. Dr. M'Mullin points out three distinct stages. The *first* begins with rigours, flushings, and all the symptoms of fever, the tongue moist, covered with a glutinous slime, or irregularly or morbidly clean ; costiveness, prickling heat, and dryness of the skin. In a day or two an eruption appears, of a dark or bright red colour, not unlike measles, which speedily runs together, exhibiting a general red suffusion, the colour disappearing upon pressure. It mostly occurs upon the inside of the thighs, or where mercurial friction has been used ; there is generally an increase of febrile symptoms as the eruption comes out, and the patient is restless and uneasy. The throat becomes sore, the tongue swells, and the eyes inflame, and this stage ends with a desquamation of the cuticle ; and if the attack be mild, the disease departs. If *severe*, the *second stage* sets in, marked with numerous minute vesicles, filled with a pellucid fluid, which are ruptured by the patient in scratching, to relieve the troublesome itching. An acrimonious fluid issues, intolerably offensive, and in great quantities, from the groins, or wherever the skin lies in folds ; this forms in drying incrustations, which mark the accession of the *third stage* ;—they are shortly thrown off, of a yellow or dirty colour. This Dr. M'Mullin calls the stage of *decrustation*, in contradistinction to the first, or stage of *desquamation*. The throat and eyes become more inflamed, the face suffers particularly from the eruptions, which crack, leaving hideous fissures. The fever is of the typhoid kind, but the appetite is unimpaired. In this state it will continue many weeks, old eruptions departing and new ones arising, till at last the patient is worn down by disease and dejection ; cough, diarrhœa, and delirium supervene, when death closes the scene. Dr. M'M. supposes the disease to be produced by the application of cold during a course of mercury, from catarrhal symptoms being present. Mr. Pearson, however, thinks that cold is not concerned in producing it.

Treatment.—Mr. Pearson advises mild diaphoretics, gentle purges, and opium at night ; sarsaparilla and bark, when the swelling departs, and the discharge ceases to be ichorous ; also the warm bath, frequent changes of linen, and generous diet, applying mild cerate and sometimes

washing, with gruel, the parts where the cuticle is detached. When the eyes or lids were affected, Mr. Pearson applied the zinc ointment, and the linimentum calcis to the cracks in the skin, removing the patient to a different apartment, and totally suspending the use of mercury; in other respects his practice does not differ from that of Dr. M'Mullin. —See the works of Dr. M'Mullin in the *Edinburgh Med. and Surg. Jour.* No. 5.;—Dr. Moriarty and Mr. Alley, of Dublin, in their essays upon the subject;—Mr. Pearson on the *Lues Venerea*, (second edition,) &c.

ESCHAROTICS—*Escharoticus*, (from *εσχαρω*, to scab over.) Applications which form an eschar, or deaden the surface to which they are applied. The term is restricted to the mildest kind of caustics. (See *Caustics*.)

ETHER—*Æther*, (from *αἰθερ*, a volatile fluid.) A volatile liquor obtained by distillation, from a mixture of alcohol and a concentrated acid; there are two kinds of ether made use of in medicine, the sulphuric and the nitrous. *The sulphuric ether* is of a pungent and fragrant odour, of the specific gravity of 739, highly volatile and inflammable, boiling at 98° of Fahrenheit. It is one of the most powerful solvents in vegetable chemistry, dissolving balsams, resins, wax, camphor, and extractive matter, but not exerting any power upon the fixed alkalies. Whenever it is administered in decoctions or infusions, they should be cooled previously to its addition. It is a diffusible stimulant, narcotic, and antispasmodic, in doses of from ʒss. to ʒij. in water or any other fluid, and usually administered in cases of hysteria, asthma, tetanus, epilepsy and other spasmodic complaints; as an external agent it produces cold and dryness, by its rapid evaporation, and is of essential service as a refrigerant in scalds and burns, in facilitating the reduction of strangulated hernia, and in diminishing excessive circulation in the brain; one caution is however necessary, in thus employing it, never to prevent its evaporation by cloths or compresses as it will then exert an opposite effect, and become stimulant, rubefacient, and even vesicatory.

Official Preparations—spirit of sulphuric ether—(*spiritus ætheris sulphurici*) ʒj. to ʒiii.; compound spirit of sulphuric ether (*spiritus ætheris sulphurici compositus*) ʒss. to ʒij. both possessing the same properties as the sulphuric ether. Aromatic spirit of ether (*spiritus ætheris aromaticus*)—a grateful stimulant in fainting, and nervous affections; dose, ʒss to ʒj.

The Nitrous Ether—more volatile than the former—specific gravity, 900; possessing nearly the same properties, and administered in similar doses, and under the same circumstances. *Official Preparation*:—spirit of nitrous ether, (*spiritus ætheris nitrosi*), refrigerant and diuretic,

in doses of from ℞ xx. to ℥j. in any convenient liquid. This preparation is commonly known as "the sweet spirits of nitre."

EUPATORIUM PERFOLIATUM—*Thoroughwort*—*Boneset*. An herb of the class Syngenesia, and order Polygamia æqualis. Tonic, and in large doses sudorific and emetic. *Officinal preparation*:—Infusion of eupatorium, (infusum eupatorii.)

EUPHORBIIUM—*Euphorbia*.—The name of a genus of plants, of the class Dodecandria, and order Trigynia. Of the several varieties, the euphorbia corollata, or the large flowering spurge, and the euphorbia ipecacuanha, or the ipecacuanha spurge, are principally used in medicine. The roots of these plants are employed—emetic and cathartic (drastic) in their operation, in doses of from x. to xx. grs. and sometimes administered as an emetic.

EXCORIATION, (from excorio, to take off the skin.) A separation of the cuticle, or an abrasion of the skin, so commonly noticed in young children in the wrinkles of the neck, the groin, &c. from a want of cleanliness; or in adults, between the thighs, or in other parts of the body, from the same cause, or a long exposure to cold, wind, &c. It is easily relieved, by washing with tepid water, and the application of a mild saturnine ointment. The excoriations behind the ears of children, must be very cautiously treated, and not too suddenly dried up, or without the administration of some laxative medicine.

EXFOLIATION, (from exfolio, to cast the leaf.) The separation of a dead piece of bone from the living. See *Bones, diseases of*.

EXOMPHALOS, (from ἐξ, out, and ομφαλος, the navel.) An umbilical hernia. See *Hernia*.

EXOPHTHALMIA, (from ἐξ, out, and οφθαλμος, the eye.) A swelling or protrusion of the eye, to so great a degree, that the eye-lid cannot cover it. See *Eye, diseases of*.

EXOSTOSIS, (from ἐξ out, and οστέον, a bone.) A morbid enlargement of, or a hard tumour in a bone. See *Bones, diseases of*.

EXPECTORANTS, (from expectoro, to discharge from the breast.) That class of medicines which increases the discharge of mucus from the lungs. They are divided into the following orders:—

I. *Nauseating Expectorants*, as squill, ammoniacum, and garlic, suitable for the aged and phlegmatic.

II. *Stimulating Expectorants*, as assafoetida, guaiacum, elecampane, horehound, &c. adapted to the young and irritable, who are easily affected by expectorants.

III. *Antispasmodic Expectorants*, as vesicatories, the pediluvium, antimony, watery vapours, chiefly calculated for the relief of spasmodic affections.

IV. *Irritating Expectorants*, as fumes of tobacco and acid vapours, proper for those constitutions in which there are evident marks of torpor, either in the system generally, or in the lungs in particular.

EXTRAVASATION, (from extra, without, and vas, a vessel.) A term applied to fluids, when they have escaped from their natural receptacle. Thus when blood is effused on the surface or in the ventricles of the brain, we say that an *extravasation* has taken place. When blood is poured out from the vessels into the cavity of the peritonæum, inflammation is said to have occurred from *extravasation*. The same term is applied when urine escapes from the urinary bladder in consequence of a wound, sloughing or ulceration of that organ, and flows into the surrounding cellular substance or abdominal viscera, causing an *extravasation* of urine. The bile may also spread among the convolutions of the bowels, occasioning a biliary *extravasation*.

EYE, AND ITS APPENDAGES, DISEASES OF.—1st, *Of the Eye-lids.*—One of the most common affections of the lids of the eye, is an inflammation of their lining and margins, to which the term of *catarrhal inflammation*, *psorophthalmia*, and *lippitudo* have been applied. Mr. Lawrence describes the first, as commencing with soreness, smarting, burning, and dryness of the margins of the eyelids, which become red, swelled, and painful. The affection begins generally on the ciliary margin, the meibomian glands participating, in a stoppage of their usual secretions, so that the lids are agglutinated together in the morning. As it increases, the margins become raw—those of the lower lid especially; and they at length ulcerate, and put on a chronic form, when the name of *lippitudo* is given to the attack. *Psorophthalmia* possesses similar characters, but is accompanied by an intolerable itching, whence the name. The causes of these disorders may be referred to atmospherical influence, exposure of the eyes to cold and wet, to the action of smoke, or to their too great employment by candle-light, all of which causes are increased in their operation, by a want of cleanliness, intemperance, and an inattention to the state of the bowels.

The *treatment* must be regulated by the stage of the inflammation. When it is incipient or acute, Mr. Lawrence applies leeches to the lids, tepid lotions, mild ointments, and active aperients; and afterwards resorts to alteratives and gentle purgatives. In all cases the organ must be rested, and every exciting cause removed. In the chronic form, astringents and stimulants should be employed, and where the palpebral conjuction is villous, free scarification. The vinum opii, the unguentum hydrargyri nitratis, or the red precipitate ointment, weakened with an equal quantity of spermaceti, may be applied to the excoriated edges with a camel-hair pencil, after all the incrustations have been softened with tepid water, and removed. Any of these affections are sometimes

rendered very obstinate by complication with a scrophulous constitution, when alterative medicine, the warm bath, regular exercise, change of air, and blisters behind the ear, will be demanded, and require a longer perseverance in their use, than in other forms of the disorder.

Concretions of the Eyelids are of two forms: first, when the lining of one or both lids adhere to the bulb of the eye; and secondly, where the lids are attached to each other. The latter may sometimes, although rarely, be an original malformation. In general, it is occasioned by severe ophthalmies, burns, &c. It is perhaps only practicable to relieve the adhesions between the eyelids, which may be accomplished with a bistoury, taking care to keep the cut surfaces asunder by the interposition of a piece of lint dipped in sweet oil, or by supporting the upper eyelid with a strip of plaster, until they have healed. If the edges of the eyelids have grown together from the outer to the inner canthus, it is of no use to separate them, when the cornea is known to be opaque; and we can only expect to be successful in an operation for the relief of the first form of the complaint, when the adhesions between the lids and eye-ball are loose, limited to a small extent, and not situated over the cornea.

Entropium, or Entropeon, is an inversion of the eyelid by which the cilia are turned in upon the ball of the eye, producing incessant irritation. The term *Trichiasis* is applied when there is no defect in the eyelid, the grievance arising from the wrong direction in which the eye-lashes grow. The names, *Distichiasis* and *Tristichiasis*, are given to a morbid double or treble growth of hairs, which are inverted upon the ball of the eye. These affections may, however, be properly described under one head, as they produce nearly the same effects, and are relieved by the same means. In all cases of trichiasis and similar affections, the pressure and friction of the hairs against the eye, occasion severe pain and inflammation, and at length ulcers, and opacities of the cornea. The causes of this irregular growth may in general be attributed to previous ulceration, whereby the cilia fall off, and those which are growing being hindered from taking their proper direction; the cure consists in plucking out the inverted hairs, and preventing their reproduction in the same direction, by smearing the whole inner half of the margin of the eye-lid, (using a camel-hair brush) with the liquor ammoniac or a solution of the nitrate of silver, and in inveterate cases, by removing a small portion of the skin, containing the roots of the inverted cilia; these plans may succeed in the majority of cases, but we occasionally find the inversion too complete to be remedied by them, when the tarsus will, by degrees, yield to the curve the eye-lashes have taken, and thus a complete case of entropium be produced. Entropium arises from small ulcers and scars upon the internal margin of the tar-

sus, and which, in healing, have contracted and turned inwards the tarsus and hairs attached to it; the affection is also an occasional consequence of chronic ophthalmia, from the skin of the eye-lids having been kept in a state of œdema and distention, terminating in great relaxation, and perhaps a partial paralysis of the levator palpebræ muscle; the upper lid is more frequently affected than the lower, and when the disease becomes inveterate, the sufferings and annoyance are extreme. In addition to the symptoms of trichiasis, which in this affection of course are much increased, a continued flow of tears excoriate the cheek, the conjunctiva becomes villous, granular, or even fungous; the patient carries his head obliquely, and awkwardly attempts to direct the pupil towards the object he wishes to see; nor are these symptoms mitigated until by repeated irritation the cornea becomes thickened, resembling a macerated ligament, when the suffering will cease in its destruction.—The treatment of entropion must be varied according to the nature of the form in which it appears. When it is owing more to relaxation than to any other cause, a cure may perhaps be effected by supporting the eye-lid for some time with sticking plaster; but if this be insufficient, or in those cases where it would be inexpedient to make the trial, a small fold of the integuments must be removed near the edge of the tarsus; this should be done exactly in the middle of the inverted part, with a pair of curved scissors, and the forceps of Bartsch; the wound may be closed with plaster, and supported by compresses and a bandage, and in proportion as the contraction of the cicatrix follows, the tarsus is restored to its proper position. A contraction of the skin of the eye-lid, and a cure in consequence, has sometimes followed the application of strong sulphuric acid to the centre of the affected part of the lid, and rubbed along on an oval space (with a small piece of wood) a little longer than the extent of the inversion, drying the part, after the acid has remained thereon for about ten minutes; in general this process, when productive of success, has to be repeated only three or four times. Mr. Crampton, of Dublin, proposes still another plan of treatment, where the former modes have been unsuccessful; he makes two perpendicular incisions in the broad margin of the tarsus, at the sides of the inverted hairs; then a transverse cut through the lining of the eye-lid from the extremity of one wound to that of another: the inverted portion of cartilage within the incisions is then put into its right position, and there retained with adhesive plaster. The former mode of excising a portion of the tarsus, as recommended by Mr. Saunders, is now deservedly abandoned in favour of the milder methods described.

Ptoxis consists in an inability of raising the upper eye-lid; it may depend on a preternatural elongation of the skin of that part, a portion of which must be removed with the scissors; or it may be occasioned by a

weakness or total paralysis of the levator muscle; this latter variety is chiefly met with in old persons, when a cure is often impracticable; it is however sometimes symptomatic of hydrocephalus, apoplexy, injuries of the head, chlorosis, worms, &c. while in other instances it is entirely a local defect. The principal remedies are, bathing the head and eye with cold water, the shower bath, friction with camphorated mercurial ointment, or stimulating liniments, electricity, an issue between the mastoid process and the angle of the jaw, and the exhibition of bark and other tonics. Ptosis may be likewise produced from a spasmodic action of the orbicularis muscle, but this is the least frequent cause, and when it does occur, it takes place at uncertain periods, and varies both in nature and duration; it is usually an effect of epilepsy, hysteria, worms, &c. and of course the first attention must be directed to the original complaint; the affection will, in general, require aperients, anti-spasmodics, blisters behind the ears, and the decoction of poppy-heads to the eyes.

Ectropium or *Ectropeon* is the term given to an eversion of the eyelid; it may be occasioned by a contraction of the integuments of the lid after the cicatrization of burns, ulcers and wounds, or arise from a morbid swelling proceeding from relaxation of the conjunctiva, after severe chronic ophthalmia, or in old persons in consequence of the debility of age; the lower lid is generally affected, its edge falling downwards and forwards, leaving the ball of the eye uncovered; the exposure of the conjunctiva soon produces a chronic inflammation, attended with constant pain, redness, and thickening of the membrane, which is at length converted into a hard callous substance; the tears fall over and excoriate the cheek, and the eye itself from its want of protection is kept in a state of continued irritation. The most advisable mode of treatment of this unsightly and troublesome affection, is to remove a considerable portion of the thickened lining of the eye-lid with a convex bistoury, and as the wound heals, the parts, with the aid of a light compress and bandage, will return to their proper position, the eyelid being drawn inward again by the same principle which caused its eversion, that is, the contraction of the cicatrix. In this operation, great care must be taken not to wound the puncta lachrymalia. Where ectropium arises from relaxation, it may sometimes be cured by the application of the nitrate of silver to the fungous surface, until a slough is produced, keeping the lid everted, until the caustic is washed off the slough, when a little oil may be applied. Slight cases will occasionally yield to mild astringents.

Hordeolum or *Stye* is a small circumscribed tumour, always situated at the edge of the eye-lids, is extremely red and painful, and very similar in every respect to a small boil; it may be treated with emollient ap-

plications, in order to favour a suppuration, when the inconvenience soon ceases; a weak solution of the acetate of lead may be finally used to disperse the hardness, that is apt to continue for sometime afterwards. When a sty becomes indurated, it occasions much annoyance by frequent returns of inflammation; touching it occasionally with the nitrate of silver will readily promote a cure.

Encysted Tumours of the Eye-lids. See Tumours.

Diseases of the Caruncula Lachrymalis, &c.—Pterygium.—This is a triangular membrane growing from either canthus or sinus palpebralis, but most commonly from behind the caruncula lachrymalis, and extending over the cornea, to the detriment of vision. There are two species: 1, the *membranous*, which is a true nebula of the sclerotic conjunctiva as well as the cornea; when it extends to it, it is semi-transparent, of the shape of an open fan, and can be easily lifted from the globe. 2. The *fleshy*, is of an adipose or sarcomatous growth beneath the sclerotic conjunctiva, of a wedge-like figure. This last is sometimes chronic and stationary, and threatens no injury to vision, when it should not be molested; but when it is approaching the cornea, or is already upon it, it should be raised, by dissecting as close as possible to the margin of the cornea, and the relaxed portion of the membrane removed by an incision midway between the pterygium and the cornea, and concentric to that membrane. The excision should not be carried to the caruncula, as a deposit of lymph is apt to be made, forming a cicatrix near it, which may afterwards prevent the abduction of the eye. The application of the caustic pencil may be proper to prevent a farther growth, but a diffused application of escharotics is improper. The *membranous* pterygium is removed by nipping up a concentric portion of it as nearly as convenient to the cornea, and excising it with a pair of curved scissors; the extremities of the line of excision, in both species, extending beyond the diseased part. Some authors have recommended the removal of a portion of the conjunctiva, one line in breadth.

Encanthis.—This is described by Scarpa and others as a small, soft, livid excrescence, growing from the caruncula lachrymalis; as it becomes large, it divides into two elongations, like a swallow's tail, one extending along the inner edge of the upper eyelid, and the other along the lower. But Mr. Travers describes it as a morbid enlargement of the caruncula itself in the form of a granular tumor, involving the valvula semilunaris, and presenting appendices corresponding to the cornua of this fold. Sometimes the short down growing upon the caruncula takes a morbid growth and harshness. The disease is very irritating, and causes epiphora by a forcible diversion of the lachrymal puncta from each other, and from the surface of the globe. The treatment is simple.

excision. The malignant species of pterygium and encanthis, mentioned by authors, has never been observed by Mr. Travers.

Pannus.—This term is usually employed when two or three pterygia appear upon the same eye with their points approximating towards each other upon the cornea. Mr. Travers applies it to a chronic thickening and opacity of the sclerotic conjunctiva without inflammation, which, by relaxation of the connecting tissue, becomes redundant and forms folds or duplicatures, on one or all sides of the cornea, encroaching on it and impeding its motions: it is analogous to relaxation of the uvula. This, as well as the elongated valvula semilunaris, and the soft red caruncles sometimes growing from it, may all be removed with a lancet-shaped knife cutting on both sides, or a pair of scissors. The small ring-cued forceps are convenient instruments for seizing them.

Frena or Frenula.—Membranous bands connecting the sclerotic with the palpebral conjunctiva; apt to follow burns, wounds of the membrane from the excision of tumors or otherwise, and analogous to the bands formed between the pleuræ costalis and pulmonalis, &c. They may be cautiously divided without wounding the conjunctiva, no bandage employed, and, during the day, the patient should not be suffered to keep his eyelids closed. Escharotics are improper, as inducing the formation of other frenæ from the inflammation they excite.

Fistula Lachrymalis.—This disease depends upon a stricture, or a total obliteration of the ductus ad nasam, which prevents the tears from passing down into the nose; the tears accordingly accumulate in and distend the lachrymal sac, situated just beneath the inner angle of the eye; which, in consequence, is constantly weeping, and the tears flowing down over the cheek. If the distended sac be pressed upon, tears and mucus regurgitate through the puncta lachrymalia. In the state of simple weeping it will remain many years, giving but little trouble, but when the sac goes on to suppuration, the matter bursts through it upon the face, through which the tears also issue, making it a fistulous opening.

Treatment.—When the tears occasionally trickle over the cheek, in consequence of relaxation of the lachrymal canal after inflammation, and forming what is termed *stillicidium lachrymarum*, little is necessary beyond astringent collyria dropped into the eye, if the complaint should not terminate at the approach of warm and dry weather. If the case depend upon a mere obstruction of the puncta lachrymalia, the introduction of a small silver probe through them into the sac a few times may effect a cure, but a complete obliteration of these orifices is described by Mr. Travers as incurable. The first stage of what is absurdly termed *fistula lachrymalis*, is sometimes called *epiphora* or the watery eye,

(Scarpa designates it by the name of the purulent palpebral discharge,) and consists of an augmented secretion of tears, and a discharge of the mucus secreted by the tarsus and the lachrymal sac, and also admits, in most cases, of an easy cure. When the disease is not in an advanced state, and the sac entire, warm water should be injected therein at least once a day, by means of Anel's syringe, and through the lower punctum lachrymale, and if any inflammation set in, a few leeches applied; a collyrium of five grains of the sulphate of zinc to four ounces of rose water may at the same time be employed, or a small quantity of the weakened ointment of the nitrate of mercury introduced between the eye-lids every morning and evening. When this treatment does not accomplish a cure, the sac should be punctured and the duct simply examined; if the probe pass at once into the nose, the case requires no further operative treatment, and the integuments recover their healthy condition under an emollient application, the discharge diminishes, and the wound heals; when, however, the passage of the probe is so prevented, that force is necessary to push it down into the nose, some measure must be taken to prevent the newly-opened duct from again closing; for this purpose, a small silver probe may be introduced from either of the puncta lachrymalia down the nasal duct into the nostril, and many recent cases may thus be cured by the passage of the instrument three or four times, at intervals of one or two days; when the cure is not perfected by this measure, a style may be passed in the track of the probe, and allowed to remain in the duct for twenty-four hours; then withdrawing it, a day or two may be permitted to elapse before the style is again introduced, injecting on the intervening days, tepid water with Anel's syringe. Whenever the water flows in a full stream into the throat the further use of the probe is needless; but, if the tears and mucus still do not pass readily into the nose, astringent lotions may be injected, and the vapour of vinegar or of diluted nitric acid inhaled up the nostril. Mr. Travers judiciously objects to the retention of styles in the nasal duct, for any length of time, as, in the majority of cases, a few weeks will suffice for their use, withdrawing and cleaning it twice a week and injecting warm water through the duct. The difficulty of passing a probe or style through the puncta has been frequently acknowledged, and in many cases, certainly, where inflammation exists, it will be more prudent to introduce the instrument through a small puncture in the skin and sac; when such a measure is resolved upon, the operation may be thus performed:—

The patient being seated, and his head fixed upright by an assistant, the surgeon places the fore-finger of his left hand on the outer angle of the orbit, and stretches the integuments by drawing them outwards. Then, with the same finger of his right hand, he traces along the inferior

border of the orbit, till he arrives near the inner angle, where he finds the sac situated behind the tendon of the orbicularis muscle, just within the orbital margin. Marking this spot, and holding his bistoury nearly perpendicular, with its edge directed externally, its point downwards, backwards, and a little inwards towards the uvula, he passes it through the integuments into the duct, and moves its point slightly backwards and forwards, to certify that the instrument has entered the canal; which is known by resistance being felt on all sides. Then, holding the bistoury with his left hand, he takes a small probe between the forefinger and thumb of his right, and sliding it down the groove in the bistoury, passes it into the nasal duct, withdrawing the bistoury as the probe enters the canal. A nail-headed style may afterwards be worn in the duct, should the surgeon deem it requisite.

M. Dupuytren uses a conical tube or hollow style, which he passes down the groove of the bistoury into the duct, by means of a small iron instrument, called the porte-canule, in form of a right angle, pointed at one extremity to receive and support the tube, which being passed into the duct, the instrument or support is withdrawn.

The term of *Æglops* or *Ægylops*, has been applied by some authors to a stage of the fistula lachrymalis, and this whimsical name has been adopted, from the supposition that goats were subject to the disease; when the puncta lachrymalia are affected, in consequence of a long continued inflammation of the skin covering the lachrymal sac, the fluid is not capable of being passed off by them, whereby distention takes place, and the skin bursts; this state is denominated *Æglops*.

The *Lachrymal Gland* is liable both to an *acute* and *chronic* inflammation; the *acute* sometimes accompanying the psorophthalmia of children, when that disease is severe, or aggravated by neglect, exposure to cold, or by the incautious use of stimulating or astringent applications; or in some instances ushering in the ordinary forms of ophthalmia, and giving rise to symptoms generally attributed to inflammation of the eye alone; the symptoms are, intense pain in the orbit, but particularly under the temporal extremity of the eye-brow, extending to the temple and cheek, backwards into the orbit, and even into the cranium; defective or profuse lachrymation; when the latter, which is generally the case, the patient complains of the tears being hot and acrid, and in a few days the edges of the eyelids and the cheeks become excoriated to some extent; both palpebræ, but particularly the superior, are swollen, red, and tense; inflammation extends to the conjunctiva and other membranes of the eye, and thus a severe and obstinate form of ophthalmia is produced. More commonly, however, it may be said, that inflammation originates in the conjunctiva, and is thence propagated to the gland. When the inflammation is at its height, considerable symptomatic fever and rest,

lessness prevail, with flushing of the face, particularly at the affected side, acute pains darting through the orbit and head, and occasionally delirium, strabismus, and impaired vision succeed.

The treatment consists of general blood-letting, the application of leeches to the contiguous surfaces, or the abstraction of blood by cupping the temple; warm fomentations, mercurial and saline purgatives and antimonials. Should the inflammation extend to the contents of the cranium, which will be indicated by severe head-ache and delirium, we must have recourse to the means advantageously employed in phrenitis, arising from any other cause.

The chronic inflammation of the lachrymal gland is a disease almost confined to the early period of life, and is generally indicative of scrophulous predisposition: in this affection there is an obvious enlargement of the gland, with an occasional œdematous tumefaction of the upper eye-lid. The patient seldom complains of pain, but of an inconvenient sensation of fulness above the globe, and an inability to move the eye of that side as freely as the other; this produces strabismus, and double or indistinct vision. Patients who labour under chronic inflammation of the lachrymal gland are very liable to attacks of strumous or pustular ophthalmia, and occasionally that peculiar ulcer of the cornea, termed the chronic interstitial ulcer, will be found dependant either upon such chronic inflammation, or on a morbid state of the glandular secretion.

The treatment of this affection may be comprised in the application of a few leeches to the neighbourhood of the gland at as early a period as possible, and in a succession of small blisters to the forehead, temple, and behind the ear; small doses of calomel, the blue pill, with occasional saline laxatives, are likewise indicated.

The lachrymal gland is also subject to a chronic inflammation more decidedly scrophulous than the above, characterized by the slowness of its progress, and the condition of the individual; the remedies demanded in such case are of the same description as those afforded in scrophulous attacks of other parts of the system. Abscesses of this gland may also frequently succeed to acute inflammation, when suppuration proceeds very rapidly, accompanied with much pain and tension, the tumour becoming prominent as the pus collects and the eye-lid assuming a red and shining appearance; from the situation of such an abscess, an early opening is imperatively required, and this may be made under the superior palpebra into the cyst, when from the size of the abscess, the lid is not rendered too tense to permit its elevation; when that is the case, the incision must be made externally parallel to the superior margin of the orbit, thus dividing but few of the fibres of the orbicularis palpebrarum, and occasioning less deformity afterwards,

The most formidable disease, however, to which this gland is subject, is, its schirrous or carcinomatous affection; it has generally been regarded as a mere concomitant of cancer of the eye, but Warner, in his work on the human eye, distinctly describes it as a primary affection, which later investigations have fully confirmed; the hard and knotty tumour, the severe and lancinating pains, the effect upon the system, and other circumstances, afford testimony as to the nature of the affection, which is no sooner positively established than the operation of extirpation of the gland should be performed. Mr. Todd, of the Richmond hospital, Dublin, records in the Hospital Reports, two successful cases after operation.

III. OF THE DISEASES OF THE EYE—*Ophthalmitis*.—This term is applied to an inflammation of the whole of the eye-ball, occasioned by accidental wounds, or following surgical operations, the lodgment of any extraneous substances in, or an immoderate use of the organ; atmospheric influence, or an exposure of the eye to a strong light, or to a constant examination of luminous bodies, all of which may be regarded as local causes of the affection; the constitutional ones are, a fulness of habit, and especially such a condition of the system as arises from intemperance, and the suppression of the menstrual or some habitual discharge; in correct phraseology these may perhaps be considered rather as predisposing than constitutional causes, under which accidental circumstances will more readily occasion disease. *Ophthalmitis* is characterized by very considerable pain prevailing not only in the front of the eye, but in its interior, and in the brow, temple, cheek, and back of the head; by more or less swelling of the organ, and considerable tumefaction of the upper eye-lid; by an increased lachrymal discharge following an earlier stiffness and dryness of the eye; and by a great increase of redness, in the first instance inconsiderable and seated in the sclerotic coat, the conjunctiva soon however participating in it, and producing, by the distention of its vessels, a bright scarlet redness, concealing the faint pink colour of the sclerotica; the conjunctiva then swelling, a deposition of lymph follows not only in the texture of this membrane, but also in the loose cellular tissue connecting it to the sclerotica, and this bright scarlet elevation of the conjunctiva surrounding the cornea, firm in its texture, frequently projecting and of considerable breadth, and always acutely sensible, gives rise to the term of *chemosis*. In this stage of the disease, light is very offensive to the eye; the pupil contracts to exclude it, and the lids are spasmodically closed. In the second stage an alteration of structure takes place; the iris changes in colour, and loses its brilliancy, the pupil still further contracts, and its clear black colour is destroyed, while the cornea becomes opaque, and the vision lost; and when the inflammation has reached its utmost ex-

tent, ectropium of the lid ensues; during this process the pulse is hard and full, the face flushed, the tongue white, and the patient in a state of constant restlessness; the pain in the eye becomes throbbing, rigours occur as the immediate precursors to a suppuration of the eyeball, which is denoted by the white opacity of the cornea turning to a dull yellow colour. The suffering continues after the formation of matter, until the cornea bursts, and the contents of the abscess are discharged, generally with the vitreous humour and crystalline lens, when the tunics of the eye collapse, shrink into the orbit, and the form and use of the organ are lost. Where the disease has not proceeded to this, its worst termination, the cornea may remain opaque, and the pupil either closed or very much contracted, vision being either destroyed or very much impaired, although the form of the eye remains; in milder cases the cornea remains clear and the pupil open, but in general, however the structure of the eye may be spared by the inflammation, the functions of the retina suffer, and some imperfection of vision is ever afterwards experienced. The striking peculiarity of this affection is the circumstance of the external and internal tunics of the eye being simultaneously attacked, forming the pathognomonic distinction between it, and the external or internal inflammations existing alone. The prognosis altogether depends upon the stage to which the disease has advanced, when our attention is required; if we are fortunately summoned at an early period, a proper and an active treatment will probably arrest it, without any unfavourable consequences, but if the inflammation be very acute, we may hardly hope to prevent some slight changes in structure, or some degree of loss in function; where chemosis is established, the cornea clouded, the colour of the iris changed, and the pupil contracted, all our exertions will prove in vain.

The treatment of ophthalmitis must, in the language of Mr. Lawrence, be bold and decisive; if it proceed from the presence of any foreign substance in the eyelid or in the ball of the eye, that of course must be removed; the upper eyelid, in the concavity of which the substance is frequently lodged, may easily be everted, by taking the cilia between the finger and thumb, drawing the lid outwards, and pressing, with a probe, steadily against its upper part, at the same time carrying the ciliary margin backwards, and when any particles of metal, dust, &c. are imbedded in the cornea, they may be readily removed with a couching needle. It is necessary in all cases of inflammation of the eye, and in none more so than in ophthalmitis, to keep the organ in a state of perfect repose, the patient remaining in a darkened room; but these measures are merely auxiliaries to the grand plan for stopping the progress of destructive inflammation. A large bleeding from the arm is indispensable, in addition to local abstractions of blood, by cupping, from the back of

the neck, opening the temporal artery, or the application of leeches as near the eye as possible. Dr. Crampton, of Dublin, has suggested the plan of applying leeches to the lining of the lower eye-lid, observing, in describing his own practice in the Royal Military Infirmary of that city, that erysipelatous inflammation does not follow their application upon a mucous surface, which is frequently the case when they are used externally on the lids or even on the temples. Mr. Lawrence condemns the custom of scarifying the conjunctiva of the eye-lids, and most particularly in acute cases. The internal treatment consists in an exhibition of an active purge of calomel in combination with jalap or colocynth, and followed by senna, salts, &c. The use of tartarised antimony has been recommended, with a view of exciting nausea and vomiting, and thus diminishing the progress of inflammation, but perhaps the more general plan with respect to antimonials, is to administer small diaphoretic rather than nauseating doses, in conjunction with nitre. Blisters were formerly applied to the temples, even in the acute state, but their presence, invariably leading to irritation, is inadmissible at least in those situations; the back of the neck, or behind the ears, is as near as we should approach the organ, if we ever deem their employment necessary during the excess of inflammation. Saturnine collyria and fomentations are perhaps of little service, and positively injurious when they supersede a more decided treatment. A strictly low diet and perfect quiet are the natural additions to the treatment here recommended.

Ophthalmia.—This term signifies an inflammation of the outer coats of the eye, the proper tunics, as well as the conjunctiva; the first variety, *the simple ophthalmia or inflammation of the external proper coats of the eye*, varies from a very slight affection of the conjunctiva to acute inflammation of it, the sclerotica and cornea, with chemosis; in the slightest form of the disease, where that membrane is alone affected, there is little inconvenience and no danger, the vessels of the membrane yielding readily from its loose texture, but when it extends to the sclerotica, the firmer texture of that membrane yields to distention slowly and painfully, and the recovery is longer or more doubtful, as the cornea and iris are apt to be implicated, when the worst consequences attendant upon ophthalmitis may ensue. The causes of this affection are the same whichever membrane is attacked, and may be likened to those described under the head of ophthalmitis. When the inflammation is restricted to the conjunctiva, which is denoted by the redness beginning at the circumference of the organ, the anterior part being comparatively free from it, and the sclerotica retaining its natural white appearance, no pain is experienced from an access of light, and the eye can be freely moved; when sclerotic inflammation prevails, the redness begins on the front of the globe, immediately round the cornea, where it forms a red zone,

and numerous blood-vessels may be seen advancing from the posterior part upon the sclerotica, which branching out, are at length lost in the surrounding zone; the character of the red tint differs remarkably in the two cases; in conjunctival inflammation it assumes a bright scarlet colour, whilst in sclerotic inflammation it appears of a dark rose-red or livid hue, from the circumstance of the vessels being seen *through* the conjunctiva. When the inflammation is conjunctival, it will soon yield to remedies without affecting any other structure, but when the sclerotica is concerned, the former membrane becomes implicated, and the cornea, without being rendered opaque, assumes a dull appearance; the suffering is also proportionally severe, a sense of stiffness and dryness prevailing, which is succeeded by a feeling of tension, and as if sand or gravel were in contact with the eye, whilst an acute pain shoots to the back of the orbit and side of the face; a great intolerance of light is a marked symptom, and also a profuse lachrymal discharge, which is diagnostic of the seat of the inflammation, the discharge from the milder or conjunctival ophthalmia being invariably mucous. The prognosis will always depend on the extension or not of the inflammation to the cornea; if it should not proceed so far, little danger need be apprehended; but where that is affected, a loss or impairment of vision is to be apprehended.

The *treatment* may correspond in all respects to that recommended in ophthalmitis, varying the antiphlogistic means according to the degree of inflammation that prevails.

The *second variety of Ophthalmia is the Catarrhal*, and may be said to owe its origin to peculiar states of the atmosphere, which are well expressed by Mr. Lawrence in the terms *cold* and *blight*; it has occasionally been designated *mucous ophthalmia* from the nature of the discharge during its continuance, which is one of its principal characteristics; it may be confined to the conjunctiva, extended to the globe, or eyelids, or include the whole in its action, which may be compared to that existing in catarrhal affections of other mucous surfaces, and in some cases we find this species of inflammation extending (as in influenza,) through the nose and its sinuses, the fauces, trachea, lungs, and eyes. The *symptoms* are at first, stiffness and smarting, some uneasiness on exposure to light, and external redness, superficial and of a bright scarlet colour, which first occurs in patches, and only becomes general when the disorder is fully developed; this redness at the commencement is confined to the conjunctiva, beginning at the circumference of the globe, then gradually approaching the cornea, on the margin of which small vesicles or pustules will occasionally appear, but in this affection there is nothing like chemosis. The mucous discharge to which we have alluded, succeeds to the stoppage of the lachrymal secretion, which, be-

coming thicker, and of a whitish or yellowish colour, as the disease advances, at length very nearly resembles pus; the eye-lids generally participate in the disorder, and a pain and sense of weight are complained of about the frontal region, with head-ache, disordered stomach, foul tongue, and other febrile symptoms; during the day time the redness is less, and there is scarcely any pain or intolerance of light, but in the evening the symptoms described set in. Catarrhal ophthalmia would appear to differ from the purulent form of the disease rather in degree than in any other essential point, unless proof can be obtained that the latter is contagious, which Mr. Lawrence yet considers to be a matter of doubt.

The *treatment* of this affection may be of a milder nature than of the ophthalmia last described, unless when the patient is young, of a full habit, and where both eyes are severely attacked, when venesection may be demanded; in ordinary cases blood-letting is rarely required, unless locally, when leeches or cupping will suffice; an active aperient, and if much fever be present and the tongue greatly loaded, an emetic, may follow the loss of blood. The patient should be kept warm, and plentifully supplied with diluent drinks, at the same time refraining from animal food. The use of saline purgatives and occasionally a diaphoretic should be persevered in afterwards. The eyes may be frequently fomented with tepid water or the decoction of poppy-heads, and the eye-lids prevented from adhering, by inserting a small quantity of any mild ointment between them, in the evening.

The *third variety of Ophthalmia is the Purulent*, which commences in the lining of the eye-lids, extends to the mucous surface of the globe, and when not checked, soon attacks the cornea; the whole texture of the conjunctiva then swells and becomes thicker, its vascular texture, in particular, is developed, and its surface acquires an intensely bright colour; the mucous surface is rendered villous, pulpy, granular, like the secreting surfaces of the alimentary canal, from which the puriform discharge flows: this form of the disease does not, like others, produce a suppuration of the eye; the changes in the cornea are sloughing, ulceration, and opacity; the anterior chamber is thus frequently exposed, prolapsus of the iris occasioned, with loss of the functions and collapse of the tunics, so that the whole of the organ is destroyed. The affection has been variously described under the names of *Purulent, Egyptian and contagious Ophthalmia*. In the first stage, there is a redness of the palpebral conjunctiva, with some stiffness of the eye-lids, and a little whitish mucus is seen on the membrane; the disease soon extends to the globe of the eye, when the second stage may be said to commence; this is marked by a bright redness, and high vascular action, great tumefaction of the membrane, and profuse discharge, and the swelling of the

conjunctiva gives rise to the appearance of chemosis, so great, as completely to hide the cornea; as the inflammation extends to the globe, the pain becomes deep-seated, and of the most excruciating nature. In the third stage, there is a gradual remission of the symptoms, the swelling, pain, discharge, and the external œdema lessened, whilst the swelling of the conjunctiva being no longer counterbalanced, an inversion of the palpebræ ensues, particularly of the lower; a chronic state of the disease generally follows, in which the linings of the eye-lids are in a thickened and granulated state, and some unnatural redness, a slight swelling and discharge, continue for some time, which are all apt to be increased from slight causes, bringing back an acute inflammation. The worst consequences have been already described, which may be expected to ensue when the cornea is early and much affected, and the pain dull and deep-seated; while if its natural transparency be retained, we are justified in forming a favourable prognosis. This is a disease that has produced no little dispute in the medical world concerning its precise nature, its contagious qualities and cure; during the long campaigns of the French and English armies in Egypt, the physicians had unfortunately too many opportunities of observing its destructive powers, and the military asylums of both nations were crowded at the termination of the war with the miserable victims to what was then generally termed the Egyptian Ophthalmia; it was at first ascribed to the minute and glassy spiculæ of the Egyptian sands, but as it has been remarked in other countries where such a cause could not exist, it has since been referred with more propriety to a peculiar miasm generated in marsh lands, or to sleeping on damp or swampy ground with little covering, and surrounded with a moist atmosphere; besides these causes, it may doubtless be attributed to the effects of vivid light and heat reflected from a sandy soil, and the exposure to cold nocturnal air, after the eye has been unduly stimulated and weakened during the day. With very few exceptions the belief of army surgeons, and perhaps of the generality of practitioners, is, that the matter secreted by the conjunctiva, in purulent ophthalmia is contagious, that is, capable of being communicated by the application of the discharge to a healthy eye, and this would appear to be confirmed by the statement of facts that one soldier has suffered from the disease in consequence of using the towel of a comrade, and that it has frequently been communicated to the nurses of hospitals during their attendance upon the affected; but however strong this evidence may appear, it is unsatisfactory to the mind of Mr. Lawrence, who still regards the subject as involved in doubt, and when we consider that this ophthalmia has only spread by contagion in camps, barracks, ships, schools, prisons, &c., we may be inclined to agree with him in admitting, that where all are liable to the same cause of disease its

effects will be more rapidly developed when unwholesome diet, insufficient clothing, and poor ventilation exist as auxiliaries; besides, the experience of Mr. Lawrence, in the London Ophthalmic Infirmary, proves that it arises from other causes even in the temperate climate of England, than the application of matter from the eyes of one individual to those of another, as in many patients no connection could be traced to any other persons labouring under the same affection, and yet purulent ophthalmia was sufficiently visible.

The *treatment* embraces a two-fold object; first, to check the inflammation by antiphlogistic measures, and secondly, to restore the texture of the conjunctiva to its natural state by the use of astringents; to fulfil the first indication, copious venesection, even to syncope, should be practised, and if the symptoms still remain urgent, the bleeding may be repeated by cupping or the application of leeches to the temple. Brisk purgatives in the first instance are urgently called for, and the action upon the bowels should afterwards be kept up by milder aperients; at the same time enjoining low diet, a darkened room, and perfect quiet; cold or tepid washes may be used to the eyes, and blisters applied behind the ears or on the nape of the neck at the discretion of the physician; these means must be repeated until the œdematous swelling of the eye-lids, the chemosis, and the pain are reduced. The conjunctiva will now be paler, and assume a relaxed and flabby appearance, the discharge still continuing abundant, and at this time the second or astringent mode of treatment must be pursued, combined with the administration of tonics, and the allowance of a more liberal diet. Mr. Lawrence prefers, at first, a solution of alum, and afterwards one of nitrate of silver, or the undiluted liquor plumbi acetatis, introducing two or three drops of either of the latter liquids between the eye-lids twice or thrice a day, and bathing the eye occasionally, in the intervals, with the alum lotion. The ointment of the nitrate of mercury (citrine ointment) may also be applied to the edges of the eye-lids at night. Bark, cascarilla, and dilute sulphuric or nitric acid, with occasional aperients, are the internal medicines recommended by the same admirable surgeon, who concludes his directions for the treatment of this affection, by advising practitioners to watch carefully at first the effect of astringents, and if the pain continue after their use, with an increase of redness, to discontinue them immediately, and return to the antiphlogistic measures.

The Purulent Ophthalmia of Infants, may hardly be classed as a distinct variety, inasmuch as its principal pathognomonic symptom corresponds to that of the lastly described disease, namely, the discharge of purulent matter; it usually appears about a week after birth, and both eyes are affected in most instances; in the first stage, it is confined to the mucous lining of the eye-lids, which are observed to adhere together

when the child awakes ; their edges are redder than usual, especially at the corners, and the access of light appears to produce much pain. If at this period the eye-lids be everted, this lining will be found red and villous, and a little white mucus will be seen lying on the inside of the lower one ; the second stage is soon formed by the inflammation extending from the conjunctiva of the palpebra, to that covering the eyeball, with an increase of vascularity, an exquisite tenderness upon the admission of light, swelling of the eye-lids, and a copious secretion of purulent fluid, which glues their edges together. Mr. Lawrence remarks that the close adhesion of the membrane to the tarsi, prevents the loose folds between the lid and the globe becoming *greatly* enlarged, and therefore that these folds being pressed upon by the orbicularis, evert the tarsi, causing eotropium. The purulent discharge completely covers the eye, and is quickly renewed after being wiped away. The third stage is marked by a remission of all these symptoms ; where this has not taken place, we may have a partial or general sloughing of the cornea, or simply ulceration and opacity, and in other instances an adhesion of the iris to the inflamed cornea. The attendant constitutional symptoms are sometimes severe ; the local irritation will occasion a sympathetic restlessness, and when suppuration commences, great languor and debility is experienced in the whole system.

In a large proportion of children who are affected with this ophthalmia, it appears that the mother is tainted with some kind of vaginal discharge, to which the eyes of the child have been exposed during parturition, and this is confirmed by the pretty regular appearance of the disease on the third day after birth ; but this description of purulent ophthalmia is doubtless occasioned by other causes, such as exposure to cold and damp air, a want of sufficient clothing, and proper nourishment. It is more frequent in premature children, than in those born at the full time, in twins than single children, in newly-born infants than older children, and in those, than adults ; the families of the poor suffer more than those of the respectable classes of society, and the moist winters of England seem peculiarly adapted for its development. The prognosis is always favourable, when the cornea remains clear, but if sloughing, or even extensive ulceration of this membrane have taken place, loss of sight is inevitable, and even when the apparent injury is not so great, blindness or impaired vision may ensue, as a prolapsus of the iris or permanent opacity may succeed to what appears to be merely a dull whiteness of the cornea, or even a trifling loss of its transparency.

In the *treatment* of this affection, the utmost care must be observed in frequently and thoroughly syringing the eyes, with a solution of alum in water, in the proportion of one grain to an ounce : this may be conve-

mently performed by laying the child with its head between the knees of the operator, and the face turned up ; the lids may then be separated from each other by the finger, the probe, or spatula, and the point of the syringe fairly introduced between them ; the syringing should be repeated till the whole of the matter collected is washed away. Mr. Ware, a very celebrated oculist of London, bestowed great praise upon a powerful and astringent stimulant, called "the aqua camphorata of Bates ;" but although in checking the discharge, this remedy may deserve his encomiums, the pain it excites, and the constant irritation that succeeds its employment, should render us very cautious in recommending its application. In addition to the plan of syringing the eyes, which is unquestionably the best and safest practice, the bowels should be freely moved, and afterwards carefully regulated, and the gorged vessels of the conjunctiva scarified ; in some instances, Mr. Lawrence has fixed a leech to the under surface of that membrane, and with great benefit. The same surgeon employs in the early stage, a saturnine lotion made with rose water, giving as purgatives, castor oil, or magnesia, preceeding them with a grain or two of calomel when the inflammation is active ; he, at the same time, decidedly objects to the use of blisters for young children. When the inflammatory stage has subsided, astringents are demanded, and Mr. Lawrence usually recommends a solution of ten grains of alum to each ounce of water, carefully injecting it under the eye-lids ; when this lotion ceases to have any effect, two grains of the nitrate of silver may be dissolved in an ounce of water, and a drop or two let fall upon the eye three or four times a day ; this last application is especially necessary when an ulcer forms over the cornea, which is not an unfrequent sequel to the affection. The prussiate of potash has been recommended, made into an ointment with spermaceti, as a good substitute for the nitrate of silver. The child may now also be supported with tonics, of which, under these circumstances, the sulphate of quinine in small doses is probably the best.

It remains but to state with regard to purulent ophthalmia, that a very prevalent notion has been entertained, that it has been occasioned by a suppression of a gonorrhœal discharge, or the inadvertent application of the matter from the urethra to the eyes ; the doctrine however is unsupported by any very strong evidence, and needs further proof, before it can be received as a fact.

Strumous Ophthalmia, or Scrophulous Inflammation of the Conjunctiva, in common with every other form of scrophula, attacks children more frequently than adults ; and in its simplest form, when it is marked by a very slight redness of the sclerotic conjunctiva, and the utmost intolerance of light, it is almost confined to the age of childhood. In most cases other marks of a scrophulous constitution are manifested at the sam,

time. Bad air, improper food, and cold, or a disordered state of the alimentary canal and skin, are the immediate causes of the affection, and probably all those circumstances that in a healthy child would produce catarrhal ophthalmia; as the disease advances, the simple redness of the sclerotica becomes more diffused, although irregularly distributed; the vessels are observed to run in distinct fasciculi towards the cornea, at the circumference of which, most of them terminate in a minute pustule; when still further progress is made, the vessels pass over the margin to the centre of the cornea, which membrane becomes of a reddish brown colour, thickened, and finally much altered in texture. The iris and pupil are, of course, concealed, and vision interrupted. The distinguishing character of this affection is, that although there is so great an intolerance of light as to render an examination of the eye very difficult, but little pain is experienced during the whole of the attack.

The *treatment* of this form of ophthalmia is sufficiently simple: to restore the secretion of the alimentary canal, the liquor ammoniæ acetatis, combined with the vinum antimonii and a small quantity of syrup of poppies, may be employed, protecting the eye at the same time from the light by a shade, and applying a blister to the nape of the neck, as recommended by many practitioners. If the cornea be opaque, we must resort to mercury, (either calomel or the blue pill, according to the age of the patient) and continue its use until the mouth be slightly affected. Scarpa advises as a tonic the administration of bark, combined with the ammoniated tincture of guaiacum; a pure air, light nutritious food, gentle exercise, the use of the flesh-brush, and cleanliness, are indispensable in addition to all these remedies. When ulcers exist, a solution of the nitrate of silver, as in the last disease treated of, must be dropped into the eye. In order to prevent a recurrence of the disease, a seton in the neck, or an issue in one of the arms, is probably the most advisable plan.

Apthous inflammation, and inflammation of the follicles, (which are generally of the atonic character, and require stimulants,) are often seen in scrophulous subjects. Mr. Travers gives five forms of such combinations, viz. 1. *Strumous inflammation without change of texture, vascularity more or less, intolerance of light excessive.* 2. *With recent diffused opacity of the corneal conjunctiva, and vessels raised upon, and overshooting the corneal margin.* 3. *With herpetic ulcers in the cornea.* 4. *With pustules.* 5. *With inflammation of the follicles and puriform discharge.* All of which require emetics, purges, alteratives, diaphoretics, blisters to the neck, or behind the ears, issues and setons, scarifying the lids, using washes of zinc, alum, copper, and tonics in the convalescent stage. If the inflammation should appear active, which is seldom the case, the treatment should first partake of that for acute ophthalmia.

Sclerolites.—Mr. Travers describes an inflammatory attack, in which a turgescence of the straight vessels, unaccompanied by any affection of the cornea or iris takes place, and with so slight a vascularity of the loose conjunctiva, as to entitle it to the above appellation, as a primary disease of the sclerotica. This inflammation is more obstinate than acute; the motions of the eye-ball are somewhat painful, the cornea becomes nebulous, if the attack be of long continuance, and the surface roughened, from effusion beneath the conjunctiva. The same treatment is required as in a case of ophthalmia.

Rheumatic Scleritis or Ophthalmia.—The inflammation of the sclerotica sometimes accompanies, and is sometimes vicarious with rheumatism, which is not surprising, as it is of a similar texture with the ligaments of the joints. This species presents the zonular arrangement of the vessels, more or less cloudiness of the aqueous humour, and the pupil displaced or drawn a little to one side. A similar inflammation is often seen in company with, or following gonorrhœa, eruptions, or sore throat of a pseudo-syphilitic character; and the pains to which it is generally allied, are those which succeed to the use of mercury.

The obtuse pain in the eye, is relieved by general or local bleeding, sudorifics and aperients; when connected with syphilis, a cautious use of mercury and the employment of nitric acid, the decoction of sarsaparilla, &c. will be required.

Diseases of the Cornea.—The structure of the cornea, consists of concentric cellular lamellæ, covered externally by a continuation of the conjunctiva, and lined internally by a serous membrane, which has been incorrectly described as the membrane of the aqueous humour; it is, in fact, a membrane sui generis. The cornea is disposed to adhesive inflammation, ulceration, and sloughing, but it rarely suppurates. The term inflammation, as applied to it, must be understood as relating to its compound texture, and not to its lamellæ or horny substance, which has no vessels proper to itself, but derives them from the covering and protecting cellular tissue. The adhesive and ulcerative processes are frequently conducted without any appearance of coloured vessels. The common affections of the cornea are opacities, ulcers, and staphyloma. Of the first, or opacities, perhaps the most usual, and the most trifling, is a diffused cloudiness, termed *nebula*, having no distinct boundary and losing itself gradually in the surrounding transparent portion; the iris and pupil are dimly seen, and vision is interrupted to a slight extent; it occurs frequently as a consequence of chronic simple ophthalmia, in which the veins of the conjunctiva have been greatly relaxed, and now become turgid, irregular and knotty, even to their minute branches spreading over the anterior surface of the cornea. Active measures are necessary in the early stage, or by these veins becoming more and more

varicose, the delicate layer of the conjunctiva, spread over the cornea, is converted into a dense opaque film, operating as a complete impediment to vision; the *treatment* consists in removing the varicose state, or if that be impracticable, to cut off the communication between the trunks of the veins of the conjunctiva, and those passing over the cornea; the first object may sometimes be accomplished by the use of Janin's ointment,* or the ointment of the nitrate of mercury, (citric ointment,) together with astringent collyria; and the second by the excision of the fasciculus of vessels at the base of the opacity; in some instances, a granular thickened state of the lining of the eye-lids will exist, when it will be necessary to remove that, as the most efficient proceeding, in dissipating the nebulous affection. *Albugo* and *Leucoma* are also opacities of the cornea, and consist of a deep extravasation of dense lymph in its substance, arising as consequences of severe ophthalmia, (especially of the purulent variety,) of an ulcer or wound; the term *albugo* is applied to the extravasation occurring from the two first causes, while that of *leucoma* is restricted to the white or pearl-coloured opacity, following a cicatrix. A recent case of *albugo* may sometimes be dispersed by a similar treatment as required in cases of acute ophthalmia, employing astringents and moderately stimulating applications in the second stage; when, however, the action of the absorbents has been, as it were, deadened, and the texture of the cornea disorganized, no remedies will avail. In the true *leucoma*, arising from a cicatrix, the transparency of the cornea cannot be restored, but like every other scar, it becomes considerably smaller than the wound of which it is the effect. (S. Cooper.)

Ulcers of the Cornea, are generally the result of violent ophthalmic inflammation, the rupture of a small abscess beneath the conjunctiva, or in the very substance of the cornea, or they may ensue in consequence of external violence. Abscesses of the cornea are not of unfrequent occurrence; although they are slow in bursting, they should never be punctured except in cases of hypopion, and even then very rarely; the matter they contain is so viscid, that not a particle of it escapes from the wound, which always gives rise to additional inflammation, and terminates in an ulcer; the safest plan of treatment is to permit the pus to burst of itself, promoting this event by frequent fomentation of the eye with tepid water. The terms *onyx* and *unguis* have been given to collections of pus between the lamellæ of the cornea, from the appearance and shape of the abscess, the first on account of its resemblance to the stone called the *onyx*, and the second, from its lunated

* Janin's ointment is thus prepared:—Prepared lard, oz. ss.—prepared tully and armenian bole, of each, dr. ij.—white precipitate, d. j.—When first used it should be weakened with twice its quantity of hog's lard.

form like the nail of the finger. Mr. Travers, however, confines both these terms to the crescentic interlamellar depositions seen in acute interstitial ulcers, in bad habits, and where violence has been inflicted on the cornea. In such cases, a great quantity of pus is secreted, and if it occupy a large central portion of the cornea, it usually terminates in an entire slough of it. If onyx of adhesive matter or nebula be present, the usual means for reducing inflammation are required.

Hypopion or *Hypopium* is the term, when the interstitial ulcer opens into the anterior chamber, and lymph and pus are secreted into it of a yellowish colour. It begins at the bottom, in the form of a yellowish streak, which gradually extends upwards until the whole iris is obscured. It increases while the violence of the ophthalmia lasts, and when that diminishes, the hypopion decreases by absorption. This requires the vigorous application of the remedies for acute ophthalmia, as its extent and duration depend thereon. Though evacuating the matter by puncture is generally prohibited, as increasing the severity of the ophthalmia, yet Searpa and Travers admit the propriety of a small opening near the margin of the hypopion if it be very large and still extending, in order to put a stop to its further progress.

An ulcer, then, arising from any of the causes we have enumerated, is of a pale ash colour, with high and irregular edges, its margin surrounded by a slight deposition of lymph, frequently accompanied by a nebulous appearance of the whole cornea, and occasionally discharging a serous matter; it is exceedingly sensitive and painful, the suffering being much increased by exposure to light, or motion of the eye-lids. When an ulcer spreads superficially, the transparency of the cornea becomes destroyed, but when it penetrates the anterior chamber, the consequences are much more serious, the aqueous humour escaping, and possibly a prolapsus of the iris succeeding. Although the ulcer may be caused by acute ophthalmia, this is afterwards frequently kept up by the ulcer, and not the ulcer by the inflammation. When the ulcer first appears, and the conjunctiva or sclerotica is much inflamed, antiphlogistic measures are required, but after this the principal aim must be to lessen its extent and its extreme sensibility; for this purpose, nothing answers so well as the direct application of the nitrate of silver, to the ulcerated surface; its use occasions much pain for a few minutes, but this temporary suffering is more than atoned for by the ease which follows in a very short time; the cessation of pain is accounted for, by Searpa, from the irritable surface of the ulcer being destroyed, and the eschar that forms in consequence shielding the part from the contact of neighbouring surfaces; the relief lasts however merely a few days, until the slough is detached, when a re-application of the caustic is necessary, and this must be repeated, until the ulcer loses its ashy colour

and assumes a pink hue ; astringent collyria will complete the cure. Slight excoriations of the cornea may be solely treated with the zinc collyrium, and where a sore is produced by mechanical or chemical injuries, the use of caustic should yield to soothing applications and anti-phlogistic treatment, until the inflammation is subdued ; it is only where a painful ulcer exists that the employment of the nitrate of silver is of such singular efficacy.

Staphyloma signifies that disease of the eye, when, in consequence of violent ophthalmia, small-pox or injury, the cornea loses its natural transparency, rises above its proper level, and projects between the lids in the form of a whitish, pearl-coloured tumour, destroying vision ; the inability to close the lids is productive of the most distressing symptoms, from the exposure of the ball of the eye, the access of extraneous matter and the friction of the lids against it, while a constant dribbling of tears, inflames and ulcerates the cheek and lower eye-lid. Two kinds of staphyloma are described by Travers ; the first, or *spheroidal*, is a mere bulging of the cornea, weakened by ulceration : the second, or *conoidal*, is a yielding at one or more points on the surface of the cornea, where recent lymph has been deposited over a breach ; occasionally both these varieties are combined.

The *treatment* will be directed rather to the removal of an inconvenience, than to an attempt at cure, which is hopeless ; where the cornea does not project beyond the lid, and occasions but little trouble, it need not be interfered with, but in inveterate cases, the prominent part may thus be taken away ; after passing a cataract knife completely across it, turn up the flap with a small pair of forceps, and then render the incision circular with the knife or seissors. If the staphyloma have occurred from dilatation, the iris will be left ; if from breach, removed ; but this circumstance makes no material difference in the healing, unless the section be made much posterior to the ciliary ring, when the globe collapses from the escape of the vitreous humour, which is not the case when the section is at the base of the cornea.

The above operation saves in some degree the form of the eye, and allows it to be protected by the closure of the lids ; the dressings and subsequent treatment are similar to those required in cases of cataract, the anti-phlogistic plan being necessary in both.

Conical Cornea. The cornea sometimes undergoes a process of absorption in its interlamellar texture, by which it loses its power of resistance, and the contents of the globe press it forward, generally in the form of a cone, and not, as in staphyloma, preceded by, or attended with inflammation. It sometimes comes on in a few weeks, at others it occupies years ; is most frequent in middle life, and is relieved by blisters.

powerful tonics, as steel, arsenic, &c. and opening the eyes in cold spring water. Evacuating the aqueous humour is useless.

Iritis, or inflammation of the iris, is an affection of common occurrence; it may be *idiopathic*, when in addition to the symptoms of ophthalmia, certain changes take place in the iris, from the commencement of attack; *secondarily*, where it arises from a continuity of inflammation, by which the various textures are affected in turn; *syphilitic*, where it is produced by the venereal disease; and *mercurial*, when it arises from the action of that mineral upon the system, and generally accompanying the syphilitic variety. Thus the iris may become inflamed in consequence of surgical or accidental wounds of the eye-ball, from various external causes, or from some peculiar diathesis of the whole system, in common with other diseases of the organ. In idiopathic iritis, the pupil appears contracted, and loses its bright colour; the iris becomes thickened and puckered, with its inner margin turned towards the crystalline lens, while its motion is lessened, and its brilliancy impaired. The change of colour takes place first in the lesser circle of the iris, which becomes of a dark hue, and afterwards in the greater circle, which turns green, if it had been greyish or blue, and reddish, if it had been brown or black. The redness accompanying these changes is not considerable, and is at first confined to the sclerotic coat, in which a number of very minute rose-red vessels are seen running in straight lines towards the cornea, forming numerous inosculations, and a pink-coloured zone at the conjunction of the sclerotica and cornea; here the vessels disappear, not being continued over the transparent cornea, as in ophthalmia, but penetrating the sclerotica, to pass to the inflamed iris; the red zone described, has been pointed out as a certain mark of iritis, but it must be remembered that it is also seen in strumous ophthalmia. The irritation caused by the light is distressing, and the patient is incommoded by any pressure upon the globe, or by any sudden or rapid motions of the organ. A sense of uneasiness is experienced over the eyebrow, and acute lancinating pains shoot through the orbit, towards the brain, becoming more severe as night approaches.—(Cooper.) Iritis has been described by Mr. Lawrence as an adhesive inflammation, attended with deposition of new matter called lymph, the effusion of which, either into the texture of the iris, or in distinct masses on its surface in a more or less fluid form, is the chief character of the affection.

As the disease advances the pupil loses its circular shape altogether, and becomes very irregular, and of a greyish colour, which is occasioned by the presence of a flake of coagulable lymph, into which the processes or dentations of the irregular pupillary margin of the iris seem to shoot, forming adhesions at these points, and hence the vision which has been indistinct throughout, is now limited to one side or the part of an object.

The inflammation of the iris has been described as adhesive, and the substance effused is generally lymph; but changes take place in the posterior quite as remarkable as those in the anterior chamber, giving rise to the suppurative inflammation, and the formation of pus; the iris now projecting more towards the cornea, at length presents the appearance of an orange-coloured tubercle upon its surface, which, gradually enlarging, at length bursts, discharging its contents into the anterior chamber, and giving rise to the term of *hypopyum*.

In secondary iritis, or when it arises from continuity, the conjunctival vascularity is more conspicuous and diffused, and the cornea so much clouded as to obscure the view of the iris; the albuminous deposit is wanting or is small in quantity, white, floeculent, and diffused in the aqueous humour, or deposited at the ciliary margin of the iris, forming a lymphatic hypopyum; the pupil is little, if at all mis-shapen, the pain inconsiderable, and generally confined to the ball of the eye; at the same time although vision is less obscured there is a greater susceptibility of light, the whole condition of the eye being described by some authors as the adhesive inflammation of the anterior chamber. The syphilitic iritis is, in the opinion of Beer, Schmidt, and many English surgeons, as characteristic of the presence of syphilis in the system, as any other secondary symptom of the venereal disease, but, as Mr. Cooper justly observes, it frequently appears in persons while under the influence of mercury both for the venereal disease and for affections confounded with syphilis, it may sometimes be regarded rather as a pseudo-syphilitic symptom, rather than an attack arising from the disorder itself. We may therefore include the syphilitic and mercurial varieties in one class, which may be thus distinguished. A pale redness first surrounds the cornea seated in the sclerotic coat alone, but soon extending to the conjunctiva which becomes the redder of the two; this redness is of a brick-dust or cinnamon colour, forming a zone around the cornea from which the vessels have a tendency to extend under its edge; the whole of this membrane becomes cloudy, without however actually losing its transparency; the pupil is contracted and irregular, and inclines to a direction upwards and inwards, towards the root of the nose; the iris becomes impaired in colour and motion and projects forwards, whilst the eye is painfully sensible and intolerant of light, a gush of tears following every quick motion or change of temperature; a nightly pain at length sets in, severe in the extreme, and limited to a space just above the eye-brow, usually commencing about six or seven o'clock in the evening, and increasing until mid-night, when it has reached its excess; it then gradually declines till an early hour of the morning, when it ceases altogether; after every attack the pupil is more contracted and drawn further upwards and inwards, the iris being at

the same time more altered in form and colour, the lymph which is compact in structure and brown in hue, and intimately adhering to the iris, increased, and consequently the vision more impeded; one or more reddish brown tubercles at length appear on the pupillary or ciliary margin of the iris, of a spongy appearance, and rapid growth, and occasionally lardy looking ulcers form on the cornea, the white of the eye, or the integuments of the lids. However favourably syphilitic iritis may terminate, the eye remains for a very considerable period afterwards morbidly sensible to light and a sudden change of temperature, exhibiting a pale violet-coloured zone round the cornea, which subsides a short time after the cause of irritation is removed.

In all cases of iritis the danger depends upon the effusion of lymph, its quick organization, the cohesion of the iris and cornea, partial or entire, the former assuming the convexity of the latter, the constriction or closure of the pupil, with opaque capsule, amaurosis, suppuration and collapse of the eye-ball.

Treatment. In idiopathic iritis, before lymph is effused, venesection, followed by the immediate application of leeches or cupping-glasses near the eye, cathartics, and nauseating doses of tartarized antimony, will generally effect a cure, although it may be necessary to have frequent recourse to the topical bleeding, before the inflammation is completely subdued; the extract of belladonna may be smeared on the eye-brow after bleeding, for the purpose of resisting the tendency of the iris to contract, and become adherent to the capsule of the lens. If the previous measures fail in reducing the inflammation, or if they have not been adopted before, or persevered in sufficiently to prevent the effusion of lymph, mercury must be employed without delay, as the most efficient means of staying that effusion, and of promoting the absorption of what is already formed. It may be administered either in the form of calomel united with opium, or the blue pill, and in cases where it is desirable to bring the system rapidly under its influence, the mercurial ointment may be rubbed in over the eye-brow. The celebrated Beer prescribed, in addition to calomel and opium, a collyrium containing the oxymuriate of mercury, mucilage and the vinum opii, and when this failed of success, he introduced between the eye-lids a small quantity of ointment formed of ʒij. of fresh butter, grs. vj. of red-precipitate, and grs. viij. of the extract of opium. A darkened room and frequent fomentations add to the patient's comfort, and mitigate the pain, cold applications being rarely if ever advisable. In syphilitic iritis, general bleeding is not so imperatively demanded as in the former variety, but cupping on the temple, or leeches applied near the eye, is always requisite, together with the free use of purgatives. The nightly attacks of pain may be prevented or moderated by rubbing well over the eye-brow the mer-

curial ointment with opium, carefully covering the eye, and calomel also joined with opium may be administered internally two or three times a day. In that form of the disease which is supposed to arise from the excessive use of mercury, Mr. Cooper, in remarking that iritis does not follow its free administration in hepatic or other diseases, where its employment is required, doubts if mercury be ever the positive cause of this affection; in the venereal eruption termed papular by Mr. Carmichael, iritis frequently occurs, whether mercury have been employed or not, and although it frequently succeeds debilitating courses of that medicine persisted in for the removal of various disorders, we may perhaps be correct in assigning its production rather to a peculiar condition of the constitution upon which it has operated unfavourably, than to the direct influence of mercury itself; this would appear to be confirmed by the fact, that in all cases of iritis, no matter from what cause they have proceeded, mercury is the only medicine upon which we can confidently rely for the prevention of the worst consequences of the disease.

It only remains to add that the iris is occasionally the principal seat of inflammation, in the peculiar ophthalmia frequently met with in gouty persons; it does not appear that *arthritic iritis* is a primary affection, but rather the consequence of inflammation in the neighbouring parts, from which it has extended. It is hardly necessary to add, that in the treatment of this variety of the disease, means must be taken to subdue the disorder of the system, before the attention is directed to the removal of one of its effects.

Closure of the Pupil occurs in consequence of inflammation of the internal membranes of the eye, especially the iris; it also sometimes follows an operation for the relief of cataract; in this state, if the retina be sound, an operation for the formation of *an artificial pupil* is advisable; three methods may be described for effecting this purpose; the first is an incision through the iris, without removing any portion of it, termed *Coretomia*, and which may be adopted when the iris has a very tense appearance, and there is no crystalline lens behind it, as occurs if the closure of the pupil has followed an operation for the removal of cataract; this may be executed with a couching needle having a sharp edge only on one side, or the small sharp iris knife of Sir William Adams; either instrument should be introduced through the sclerotica about a line and a half from the cornea, and after perforating the iris towards the external angle, its point conducted transversely through the anterior chamber, as far as the margin of the iris next the nose; the sharp edge is then to be turned backwards, and withdrawn so as to make a transverse division of the iris. Cheselden, in performing this operation, passed the needle into the posterior chamber as far as the nasal edge of the iris, when he thrust it from behind forwards, through

that membrane, cutting it transversely from its internal to its external edge; a variety of other modes have also been adopted, but nearly all are subject to failure from the tendency of the new opening to close again; to obviate this, a M. Maunoir proposed a double incision of the iris, in the shape of the letter V, made with a pair of very fine scissors, the upper blade probe-pointed, while the lower one is very fine and sharp: introducing the scissors shut, through a small opening in the cornea, with the flat part in a line parallel to the transverse diameter of the iris, they are gently opened when the point has nearly reached the great margin of the membrane, and turned, so that the point of the lower blade may perforate it, and pass over its posterior surface, until the probe point has reached the part where the cornea and sclerotica join. The iris is then to be cut transversely by a single stroke, as nearly as possible in its centre, following this step by another incision diverging from the first, so that the two cuts may produce in the middle of the iris a triangular flap, with the apex exactly in the centre, and the base near the great margin of the iris. A few days after this operation, the apex is found retracted towards the base, leaving a square or crescentic opening in the middle of the iris.—(Cooper.)

The second mode of forming an artificial pupil, consists of the *excision* of a portion of the iris, first made to protrude through an opening in the cornea, called *Corectomia*; this is required in those cases where there is a sound transparent lens; where the pupil is much contracted, and the adhesion of a very firm nature, and if a central opacity exist in the cornea preventing or interrupting the rays of light to the retina, the internal parts remaining healthy. Wenzel, Beer and others, have performed this operation in different modes, but the method proposed by Mr. Gibson, of Manchester, has so much to recommend it on the score of simplicity, and has been attended with so much success, as to render it perhaps the most advisable plan of procedure: that gentleman, after securing the eye-lids, as in an operation for cataract, makes a puncture in the cornea with a broad cornea-knife, within a line of the sclerotica, to the extent of about three lines; all pressure is then removed and the knife gently withdrawn; a small portion of the aqueous humour immediately escapes from the opening, and the iris falls in contact with it, closing it like a valve. Mr. Gibson then makes a slight pressure upon the superior and nasal part of the eye-ball, with the fore and middle finger of the left hand, till at length, by increase of the pressure, or varying its direction, the iris gradually protrudes to about the size of a large pin's head; this is cut off with a pair of fine curved scissors, the remainder of the iris receding, the portion which has been removed leaving an artificial pupil more or less circular; if any strong adhesion of the inner border of the iris to the cornea exist, so as to prevent the

protrusion of the membrane through the opening of the cornea, a part of the iris not adherent, must be drawn through the aperture with a small hook, and cut off, a removal of a portion of the iris being necessary to success in every case.

The third operation for artificial pupil, is the separation of some part of the external ring of the iris from the ciliary ligament, termed *Coredialysis*, which may be performed when the cornea is incurably opaque, excepting so small a part of it, that it could not well be opened for the excision of a portion of the iris, or, in the language of Mr. Guthrie, when the closed pupil is the result of inflammation from an injury, the lens absorbed, and the anterior capsulo, or both the anterior and posterior, are thickened and firmly attached to the iris, with only an indistinct perception of light, and a discolouration of the lesser circle of the iris, indicating a deposition of lymph behind it; the most advisable mode of performing this operation, is that of Reisinger, which is adopted by Professor Beer:—a puncture, one and a half, or at most two lines in length, is first made in the cornea, near its margin, with a lancet-shaped knife, and, if possible, one quarter of an inch from the part of the iris which is to be separated. A pair of double-hooked forceps is now to be introduced into the puncture, and conveyed with the points of the hooks turned downwards, as far as the spot where the iris is to be separated, but always as near as possible to the ciliary edge; the points of the hooks are then to be directed towards the iris, and the blades slightly opened, are to be made to enter the membrane; the forceps must now be shut, and drawn towards the wound in the cornea: thus, a considerable portion of the iris will be detached, brought through the wound, and left to unite with the cicatrix. When the iris cannot be prevented from shrinking into the eye again, the part of it drawn out should be cut off, uniting the operation of *coredialysis* to that of *curectomia*: and where the iris is very tense, no prolapsus need be formed, as a free separation effected with the double forceps will leave a permanent opening of sufficient size. With respect to the whole of these operations for the formation of an artificial pupil, the following rules may be laid down, for the government of the practitioner:—A sound part of the iris must always be preferred to an unhealthy portion, for the place of the new pupil; when the sight of one eye is entirely lost, and some degree of vision is yet enjoyed through a partially closed pupil of the other, an operation is unjustifiable, as its failure would consign the patient to complete blindness; when one eye is *perfectly* sound, the operation is condemned, inasmuch as the new opening not being made in the axis of vision, the sight becomes confused in the other eye, unless the imperfect eye is kept closed; a gony, rheumatic, or serophulous constitution, a tremulous state of the iris, an extensive opacity of the cornea, are all un-

favourable to the success of an operation, whilst in cases of diseased retina, or when the eye is changed in its shape and consistence, it would be hopeless, and therefore absurd in attempting. It is necessary to observe, that when the new pupil cannot be made in the centre of the iris, the following order of parts are the most eligible. 1. the inferior part of the iris inclining inwards; 2 the internal, a little below the transverse diameter of the eye; 3 the inferior and external part; the upper portion is always the most objectionable, from the eye-lid covering that portion of the cornea, in the natural state of the eye.—(*Guthrie and Cooper.*)

Prolapsus of the Iris,—(*proclentia iridis*)—sometimes called *staphyloma iridis*, either occurs from a wound or ulcer penetrating the anterior chamber through the cornea, and allowing first of the escape of the aqueous humour, and then of a portion of the iris at the external opening; the size of the part protruded, varies from that of a pin's head to a small pea; from the extreme sensibility of the part, and from the constriction it suffers, the most violent symptoms of ophthalmia are produced, such as an oppressive sense of tightness in the whole eye-ball, inflammation of the conjunctiva and eye-lids, a copious effusion of tears, and a total inability to bear the light; in the early stage, it is occasionally possible to reduce the protrusion, particularly in the case of a recent wound, but if the inflammation be violent, and the slightest adhesion have taken place, the attempt would be both useless and injurious. When the prolapsus is large, it is apt to take on the adhesive process at once, by its pressure upon the margin of the aperture in the cornea, the healing process being marked by a dusky white line at the verge of the opening. If the prolapsus be small, it should be touched with the nitrate of silver, repeating the application, notwithstanding the extreme pain it affords at the time, until the prominent part of the iris is on a level with the cornea, bathing the eye very frequently in the intervals with milk and tepid water, and using afterwards a collyrium of zinc, or the ointment of nitrate of mercury, weakened with twice its weight of lard, to the eye-lids every morning and evening. Should the prolapsus be large, it may at once be removed with a pair of curved scissors, applying the collyrium or ointment as before. By either of these methods, we merely remedy the annoyance of the disease, the deformity of the pupil remaining, although in the course of time its shape may somewhat improve.

Choroiditis.—It is probable that the iris and choroid are seldom inflamed, one, without the participation of the other; but in some instances where symptoms of deep-seated inflammation occur, such as the appearance of a zone of vessels at the margin of the cornea, (which, taken by itself, is a sign that inflammation has extended to the sclero-

tica,) dulness of the humours, a spastic contraction and a sid limited motion of the pupil, impatience of light, and dimness of vision, all prior to any visible changes in the iris, we may infer that choroiditis is existing as a primary affection. The *treatment* required is the same as that described for iritis.

Hydrophthalmia or *Dropsy of the Eye*, may occur either from a morbid increase of the aqueous humour, in consequence of the secerning extremities of the arteries, and the minute mouths of the absorbent vessels of the eye not acting in their naturally reciprocal manner, or from an augmentation of the vitreous humour, combined, perhaps, with a diseased alteration of the alveolar membrane, by which this humour is produced. The eye presents an oval shape, terminating in a point on the cornea, and at length, enlarging in all directions, it projects from the orbit, causing great deformity. When the disease, as in some instances, is preceded by a violent ophthalmia, the symptoms are, of course, the same as those described under that affection; at other times, however, the attack is not ushered in by any greater inconveniences than an uneasy sense of tumefaction and tension of the orbit, a difficulty of moving the eye-ball, and an impairment of sight. As the disease advances, when the eye has become oval, the anterior chamber is more capacious than natural, the iris situated further backward, and tremulous upon the slightest motion of the eye-ball, the pupil constantly dilated, and the crystalline lens sometimes discoloured in the earliest stage of the disease, and at others not obscured until it has considerably advanced. When the eye has projected from the orbit, the same grievances arise as in staphyloma; inflammation, ulceration, destruction of the eye, and, under the worst circumstances, caries of the orbit, and even a fatal termination.

The causes of hydrophthalmia are little understood; it occurs probably more frequently in persons of a dropsical habit, succeeding a slow inflammation of the interior of the eye: the prognosis is always unfavourable, as far as the restoration of vision is concerned, although an increase of the size of the organ may sometimes be prevented where the disease is not complicated with a varicose state of the vessels or carcinoma. In the *treatment*, calomel and hemlock, or calomel and digitalis, stimulating and mercurial liniments rubbed on the eye-brow, electricity, blisters or issues near the organ, may all be recommended when a dropsical patient is suffering from the disease; in other cases, which are comparatively rare, cupping and blistering the temple or the nape of the neck, and the alterative class of medicines are advisable, avoiding all astringent collyria in favour of tepid emollient applications. Should such treatment fail in staying the progress of the disease, and the protrusion occasion the same distressing symptoms described in sta-

phyloma, it will be necessary to adopt the same means of relief when that affection demands. A portion of the centre of the cornea of the breadth of a pea should be cut off, and as much of the humour squeezed out, as will permit the lids to be drawn over the ball, applying afterwards merely a pledget and bandage, and subduing any inflammatory symptoms that may probably arise about the fourth or fifth day, by the usual antiphlogistic treatment, and emollients.

Should a fungus afterwards arise from the internal part of the eye, which is not stayed or destroyed by the use of caustic, the operation of extirpation of the organ, offers the only chance of preserving the life of the patient.

Cataract consists of an opacity situated between the vitreous humour and the iris, whether in the crystalline lens, its capsule, or in the posterior chamber between the capsule and the uvula; when it occurs either in the lens or its capsule, it is denominated a true or genuine cataract; when in the front of these parts, it is termed a false or spurious one. Cataracts are also divided into idiopathic, or such as arise from internal and generally unknown causes, and into accidental, arising from external violence or active inflammation, the former generally affecting both eyes, the latter usually confined to the organ injured.

Without entering upon the nice distinctions of Professor Beer in his classification of cataracts, it is sufficient to describe them, 1st, as *hard*, 2dly as *soft*, *caseous* or *gelatinous*, 3dly as *fluid* or *milky*, and 4thly as *capsular* or *membranous*. The first, or *hard* variety, is generally idiopathic, slowly formed, of a dull yellowish or grey colour, and always commencing in the centre of the lens; as the opacity increases, a black ring is observed round the pupil, the motions of which are not much impaired; the sight is better in the shade than in a strong light, from the greater dilation of the pupil in the former, and although the clear view of objects immediately in front of the eye is prevented, others laterally situated may be discerned with sufficient clearness; this kind of cataract affects persons of all ages, but particularly the old, although it is far from being confined to them, and in some instances it is even congenital. In the *caseous*, *gelatinous* or *soft cataract*, the lens is thicker and larger than natural, and the motions of the iris necessarily more obstructed; vision is nearly, if not completely prevented, nor is it improved in the shade, or by the application of belladonna; no black circle is observed round the lens, which is described as frequently possessing a spotted appearance. The *milky* or *fluid cataract* is usually of a white colour, with irregular spots or streaks upon it, changing their situation by a sudden motion of the eye, or when it is rubbed or pressed; the opacity is close behind the pupil, occupying its lower half, the pupil itself dilated, and the motions of the iris from the projection of the cata-

fact much impeded, and vision proportionably lessened ; no advantage is gained by excluding the glare of light or using belladonna, and in all cases an habitual dilation of the iris, renders the blindness more complete. In the *capsular* or *membranous cataract*, either the anterior or posterior capsule of the lens may be affected, and in the latter case, vision is completely obscured ; the opacity generally begins at the margin of the pupil, in the form of small shining spots, and never continues long without the lens becoming implicated ; if the opacity be confined to the front capsule, the cataract possesses a convex appearance, and seems in contact with the iris, but if the posterior capsule be opaque, it appears deeply situated, and with a concave surface, and as this species of cataract is frequently the result of inflammation, extending from neighbouring parts to the capsule, this membrane is not only often adherent to the lens, but also to the hyaloid membrane.

Cataracts may also be *simple*, when existing independent of any other disease likely to impair the functions of the eye, or complicated, when joined to some other morbid change of the organ, as amaurosis, adhesion of the lens to the iris, or ophthalmia, or a constitutional disorder likely to affect it, such as gout, rheumatism, syphilis, erysipelas, &c. The causes of this affection may be various ; it has been generally supposed that individuals much exposed to strong fires are particularly liable to it, and also those who have been accustomed to work upon small, shining, microscopic objects ; it would likewise appear that in some cases an hereditary disposition to cataract has prevailed, whole families in succession having laboured under the disease ; to this list of causes may be added the consequences of wounds piercing the capsule of the lens, or of violent contusions of the globe of the eye. The constitutional influence of specific disorders in the production of cataract, however strongly insisted upon by Professor Beer and others, is pretty generally denied by the majority of authors ; whenever the disease follows rheumatism, gout, scrofula, syphilis, &c. it is the consequence of the inflammation produced thereby, in the tissues of the eye, gradually extending to the lens or its capsule.

The consistency of cataracts is a matter of no little importance to the operative surgeon, as the means of relief vary according to the hardness or softness of the lens ; we usually suppose that a yellow or brown colour of the lens indicates a hard cataract, and a white or milky appearance, a soft one ; but there is yet one other circumstance to be taken into consideration, which is even a better criterion of consistence than colour ; we allude to the size, for the smaller the lens is, especially when of a dark colour, the more solid is the substance, while when large and protuberant against the iris, the greater probability exists of its being soft.

All attempts to disperse a cataract by internal medicines or local applications are not entitled to much confidence; Boyer records a case where vision was regained, and the transparency of the pupil restored by an accidental displacement of the lens from the axis of sight, and this may have occasionally happened in other instances; spurious cataracts, where a deposit of lymph or blood in the front of the lens obscures vision, may sometimes be dispersed, but when a genuine cataract exists, we have to expect relief only from an operation.

There are three modes practised for the removal of cataracts: *extraction*, *couching* or *depression*, and *absorption*, by breaking up the opaque lens and capsule; the last method is generally included under the term *couching*, of which it may be regarded as a modification.

Extraction may be performed when the cataract is hard, the eye prominent, the anterior chamber large, the pupil not contracted, the diameter of the cornea not diminished, and when the cataract is not adherent to the iris, or complicated with any other affections; the operation may be thus conducted. When the left eye is to be operated on, the patient should be placed on a stool, the height of which brings his head level with the breast of the surgeon; the light should not be too strong, and the sound eye bandaged up; an assistant standing behind should support the head of the patient, at the same time raising the upper eyelid with his fore and middle fingers, while the operator is seated rather higher than the patient, resting his right foot on a stool in order that his knee may afford a support for his elbow; the knife, commonly known by the name of Beer's knife, is to be held like a pen, and the little finger steadily rested against the cheek: with his left fore and middle fingers, the surgeon depresses the lower eye-lid, making at the same time a gentle pressure against the eye-ball, so as to prevent its motion inwards. The eye being perfectly quiet, the knife is introduced into the cornea, a little above its transverse diameter, and about three fourths of a line from the margin of the sclerotica, directing it at first obliquely, as though the intention were to penetrate the iris, in order that it may not enter between the laminae of the cornea; the arrival of the point is very visible in the anterior chamber, while the remainder of the blade is buried under the cornea; it must now be passed cautiously and steadily across the anterior chamber in a parallel direction to the iris, until it has passed out of the cornea at a part corresponding as much as possible in height and distance from the sclerotica, to that at which it entered; time should now be given for the spasmodic action of the vessels of the eye to cease, when, all pressure on the eye being removed, the operation may be continued by pushing the knife in the same direction as before, until its edge descends through the lower portion of the cornea, when the eye-lids may be allowed to cover the ball, again allowing a few seconds to elapse be-

fore the operation is resumed; the next step is to divide the front capsule of the lens, which may be done with a couching needle, either making a crucial division, or cutting it into minute portions by repeated strokes of the instrument in different directions; this accomplished, the lens in general readily escapes through the pupil by the action of the eye itself, but where this is not the case, its expulsion may be assisted, by a moderate degree of pressure upon the lower part of the eye, and if its passage be still delayed, this must be gently increased, until the inferior portion of the lens presents itself, when the curette (a small scoop) should be insinuated behind it, in order to further its separation, and by the same instrument, any small remnants of the lens may be removed; the operation thus concluded, great attention is required in placing the flap of the cornea in exact contact with the part from which it has been divided, so as to prevent an uneven cicatrix; both eyes should be then covered with light compresses, the patient confined to his bed in a darkened chamber, and restricted to a low diet. Should much pain occur in the eye, afterwards, it is proper to apply a few leeches to the temple, or withdraw a few ounces of blood by venesection, and unless there be reason to apprehend any displacement of the flap, or other unfavourable circumstances, the compresses should not be removed before the fifth or sixth day after the operation.

When the right eye is the seat of the disease, unless the surgeon has a perfect command of his left hand, his place in the operation must be behind the patient, when the knife should be directed towards the eyebrow, and introduced below the horizontal diameter of the cornea, which is to be divided upwards: the remaining steps of the operation are the same as those practised upon the left eye. The great objects of care in the performance of this operation are, to avoid wounding the caruncula lachrymalis or the edge of the iris, when making the incision of the cornea in the right eye, or the upper eye-lid in the same stage of the operation in the left eye; to make such incision of the cornea large enough for the ready escape of the lens, and to avoid lifting up its flap, whilst dividing the lens, lest the vitreous humour should also escape.

Attention should likewise be paid to the bowels for some days previously to the operation, in order to obviate any necessity of administering purgatives afterwards, and thereby creating some degree of bodily disturbance.

The term *couching*, as before observed, includes both the remaining operations for the depression of the cataract, thereby removing it from the axis of vision, and the breaking up of the lens and bringing it in contact with the aqueous humour, in order to effect its absorption; the first of these, or *depression*, consists in a displacement of the cataract, carrying it with the point of the needle into the vitreous humour, and may be

thus performed:—The pupil having been dilated with belladonna, the patient and operator are placed in the same relative position as required in extraction, and the couching-needle held with its convexity forwards, its point backwards, and its handle parallel to the temple; the patient should now be directed to turn the eye towards the nose, when the needle may be introduced through the conjunctiva and proper coats of the eye into the vitreous humour a line and a half from the margin of the cornea, and a little below its transverse diameter, by which means the ciliary processes and ciliary artery and nerves will escape injury; the needle should first be directed towards the centre of the vitreous humour, but after its point has penetrated the coats of the eye, it must be guided to the upper part of the lens, which should be pressed a little downwards with the flat convex surface of the instrument, thus making a space between the cataract and ciliary processes, for the safe conveyance of the needle into the posterior chamber, in front of the lens and its capsule, taking care during this step of the operation to keep the marked side of the handle forwards, so as to turn the point from the iris; the needle will now be visible in the pupil, and its point should be directed transversely, as far as the inner edge of the lens, when by inclining the handle forwards, it will be pushed through the capsule into the substance of the lens, which may be lacerated by a downward and backward motion, and carried fairly into the vitreous humour; this laceration of the anterior capsule, is of considerable importance, as the absorption of the opaque lens is thereby promoted, and the chance of a secondary membranous cataract lessened. If the cataract be fluid, the contents will flow out directly the capsule is pierced, rendering the whole of the aqueous humour turbid, and obscuring the iris and needle; in such a case, the capsule should be freely lacerated as far as can be safely done, and the opaque matter left to the action of the absorbents, which will generally remove it in a few days.

In those cases when the cataract is soft, the operation of *breaking up the lens*, and *bringing the fragments into the anterior chamber for absorption*, must be adopted; the steps of the operation will be the same as described for depression, until the capsule is freely divided, when the opaque matter must be pushed forward into the anterior chamber, where absorption is carried on more actively than in the posterior. There is yet another mode of operation to which the term of couching is applied, *reclination*, and which consists in turning the opaque lens (the first part of the operation being the same as in the two last cases) so that its anterior surface may be upwards, and its posterior surface downwards, in which position its depression is accomplished; a deviation from this method of operating in order to effect the same object is sometimes made, under the name of *Keratonyxis*, which is performed through the

cornea and pupil, and in two ways; the first by destroying a central portion of the capsule, equal to the size of the pupil, with or without a very small opening of the texture of the lens; the second, where the entire of the lens is broken up, the capsule destroyed, and the fragments brought into the anterior chamber.

After all these operations, the same treatment must be adopted as in extraction, to prevent or check any inflammation, and the pupil kept dilated with belladonna until all risk of an adhesion of the iris is past.

The congenital cataracts of children are mostly capsular, and accompanied with a complete or partial absorption of the lens; the late Mr. Saunders attained great eminence by his frequent and successful operations in such cases, sometimes introducing the needle through the cornea and pupil as in keratonyxis, and which he ultimately preferred, as inflicting less injury upon the ciliary processes and vitreous humour, and at others dividing and lacerating the opaque membrane as in an usual case of couching; the principal evil of Mr. Saunders's practice consisted in the necessity of its frequent repetition, whereas by the anterior operation, the disturbance of the cataract is more complete, and consequently the occasion for a second operation not so probable; since the period of that eminent surgeon, practitioners have usually adopted the latter mode.

The probability of success in an operation for cataract greatly depends upon the disease being free from every complication, both in the organ itself, and in the system at large; it is still a disputed point whether it be advisable to perform the operation when one eye remains perfectly sound; some writers appear to dread the possibility of injuring the healthy organ by any interference with the one affected; whilst it has been argued by different authorities, that the presence of a cataract in one eye, is not only likely to induce the disease in the other, but also to occasion so amaurotic a state of the retina in the organ affected, as to render any operation afterwards fruitless; but whenever the necessity for operating is clearly admitted, as little delay as possible should take place, as when the perception of objects is lost, the muscles acquire so strong a habit of rolling the eye, that for some time after the pupil is cleared of its opacity, no voluntary effort can controul the involuntary motion, or direct the eye to a steady gaze, and hence, distinct vision is prevented; in addition to this reason, another equally powerful exists in favour of an early operation, in the condition of the retina, which, if allowed to remain unexercised for any considerable period, is apt to lose a part or the whole of its sensibility.

The only disease perhaps with which cataract in its incipient state can be confounded, (particularly when idiopathic) is amaurosis; but the following peculiarities of the two affections will readily enable the practitioner to discriminate between them. In cataract, all objects ap-

pear to be obscured by a thin mist, whilst the blindness is in exact proportion to the degree of opacity behind the pupil, and therefore, while the vision is obscured in front, it exists much stronger when directed laterally; the sight is generally better in the shade than in a strong light; as the opacity augments, a black ring is observable round the pupil, the flame of a candle in the early stage of the disease, appears surrounded by a whitish circle, which enlarges as the patient retires from the light, but as the opacity advances, the flame cannot be discerned; a cataract does not impair the motions of the iris, and the sight receives assistance from the use of convex glasses.

In amaurosis, the cloudiness is observed at a great depth behind the pupil, and has a concave, green or reddish appearance; the diminution of sight does not correspond with the less of transparency, the pupil is generally angular and dilated, the activity of the iris weakened or destroyed, and the brightness of the cornea impaired; the presence or absence of light does not effect the alterations recognized in cataract, but any circumstances augmenting or diminishing the sensibility of the retina, such as agreeable emotions of the mind, a generous meal, &c. on the one hand, or long fasting, mental anxiety, &c. on the other, will produce a temporary benefit or injury; the flame of a candle and the zone surrounding it, exhibit the varied hues of the rainbow, instead of the white halo of cataract, whilst glasses render no assistance, and objects placed laterally are as obscure as those situated in the front of the eye.

Glaucoma consists in a greenish or grey opacity of the vitreous humour, accompanied with derangement of the structure of the hyaloid membrane, retina, and tunica choroidea, the vessels of which are always more or less varicose. In this disease, a pain is experienced over the brow, and in the head, the sight becomes dim and weak, and the pupil of a muddy or yellowish green colour, which appears to be reflected from the bottom of the eye, rather than to arise from alteration of the pupil itself. The vision is sometimes wholly lost, with only a very slight discolouration of the pupil, and in a few instances, the green hue is not distinguishable, although perfect blindness prevails; the disease continuing, the discolouration becomes greater, the motions of the iris less, and at length the lens becomes affected, giving rise to a cataract of a yellowish, greenish, or dirty white colour, termed *cataracta viridis*, or *glaucomatosa*, which swells and appears to protrude into the anterior chamber; the pain now becomes incessant and violent, the eye-ball exceedingly varicose, the cornea flaccid, with its pupillary edge inverted towards the lens; the iris motionless, the vision totally lost, whilst the whole organ is as void of lustre as in a corpse. Glaucoma undoubtedly succeeds an inflammation of the eye, in some cases, but as Professor Beer remarks, in others it is not preceded by any inflammatory attack; individuals of gouty and rheumatic habits appear to be more disposed

to its attack than others. The prognosis must always be unfavourable, as however long it may continue apparently stationary, the lens nearly in every instance becomes affected, whilst the retina is from an early period rendered more or less amaurotic. We are yet justified, as there is a decided congestion about the brain and orbit, to adopt the antiphlogistic treatment to its full extent, and to exhibit purgatives and frequent alterative doses of mercury, with a view to preserve the sight that remains, as long as possible, and abate the accompanying pain.

The tremulous iris is considered by Mr. Travers as always connected with a relative disproportion in volume of the vitreous humour, whether congenital or the result of operations or injuries. Couching, if roughly performed, will break down a portion of the vitreous cells, which become obliterated; hence the frequency of floating cataract and tremulous iris after such operations. The loss of a considerable portion of the vitreous humour does not always permanently impair vision except of minute objects.

Diseases of the Retina.—An inflammation of this texture is characterized by a sudden attack of vehement and most distracting pain, extending from the bottom of the eye-ball to the occiput, or in the reverse direction, total blindness supervening in a few hours, with occasional sparks and flashes of vivid light. The pupil is gaping and motionless, as in confirmed amaurosis, and the humours are thick and muddy. The external signs of inflammation are, in the onset, disproportionate and insufficient to account for the symptoms. Intolerance of light is not a sign of this affection, for the retina is very shortly rendered completely paralytic.

In some cases the signs of the choroid inflammation are present; the pupil is not thrown open, but is without motion, and in addition to the diffused vascularity of the conjunctiva, the straight ciliary vessels are much loaded, so as to give a livid hue to the sclerotic around the cornea. The pupil becomes in a few days plugged with lymph, or the whole iris bulges forwards, changes colour, and the crystalline turns opaque; or instead of this, the same splendid tapetum-like appearance presents itself, which is observed in the commencement of the medullary fungus, upon looking obliquely through the pupil. With the pain is a sense of confusion, so great as to threaten the loss of the intellect. When the internal signs of inflammation are less obvious, and the humours and internal tunics undergo a slow but complete disorganization in the progress of the disease, meteoric flashes are frequent, even after the inflammation has run its course.

This is an affection for which little can be tried with a fair prospect of success; the use of the lancet, and mercurials, exerting but a feeble influence over it; still we may resort to them, together with the ap-

plication of blisters, and the antiphlogistic regimen, for the want of other remedies.

Amaurosis, formerly called *Gutta Serena*. Amaurosis comprehends all those imperfections of vision which depend upon a morbid condition, whether affecting structure or function, of the sentient apparatus proper to the organ. Amaurotic affections being so very numerous, and differing so much in degree as well as in kind, may be divided into two classes. 1st, *organic*, 2d, *functional*. The first comprehends alterations, however induced, in the texture or position of the retina, optic nerve or thalamus. The second includes suspension or loss of function of the retina, and optic organ, depending upon a change either in the action of the vessels, or in the tone of the sentient apparatus. *Causes of the first class*. 1. *Læsion*, extravasation of blood, inflammatory deposition upon either of its surfaces, and loss of transparency in the retina. 2. Morbid growths within the eye-ball, dropsy, atrophy, and all such disorganizations as directly oppress or derange the texture of the retina. 3. The state of apoplexy, hydrocephalus, tumours or abscesses in the brain, in or upon the optic nerve or its sheath, and thickening, extenuation and absorption, or ossification of the latter. *Causes of the second class*. 1. Temporary determination; vascular congestion, or vacuity, as from visceral and cerebral irritation; suppressed, deranged, or excessive secretions, as of the liver, kidneys, uterus, mammæ, and testes; various forms of injury and disease; and sudden translations of remote morbid actions. 2. *Palsy* *idiopathica*, suspension or exhaustion of sensorial power from various constitutional and local causes; from undue excitement or exertion of the visual faculty; and from the deleterious action of poisons on the nervous system, as lead, mercury, &c. The second class or functional, is subdivided into 1st. *The symptomatic*, or that which is only a symptom of some general disorder of the system; as general plethora, general debility, &c. 2nd. *The metastatic*, or that produced by the sudden transference of the morbid action from another organ of the body; as from the skin, the testicle, &c. 3rd. *The proper*, or that which immediately depends upon a peculiar condition of the retina, as the *visus nebulosus*, *musæ volitantes*, &c.

Organic amaurosis from inflammation. Many diseases of other parts of the eye, which are often present in organic amaurosis, are the effects of an inflammation which has destroyed the retina;—as “discolouration and absorption of the vitreous humour, or a bright yellow opacity of the crystalline lens, which is indurated—its capsule condensed with it, and firmly adhering to the constricted and perhaps irregular pupil, with peduncles of lymph, or detached flakes of the black pigment projecting from its posterior border—or a capsule containing calcareous

concretions with an absorbed lens, a concave or tremulous iris, an obliterated pupil, or a staphyloma of the sclerotic or choroid membranes.

Functional Amaurosis. When the eyeball has the appearance of health, and the loss of vivacity in the motions of the pupil, is the only sign of an amaurosis obtained from an inspection of the organ, we are scarcely warranted to suppose any disease of structure."

The *symptomatic functional*, includes a class of diseases, which to consider in detail would occupy a volume. The amaurosis therefore being subservient to the disease which affects the system at large, or some one important organ, the latter is the proper object of medical treatment. For example, the morbid states and actions of the vascular system; the disordered state of the digestive organs, arteries, or secretions; local irritation, from wounds, as abscesses, caries, worms, &c.; strong mental emotion, producing morbid irritability. Though our prognosis will depend upon the degree, rather than the nature and origin of the functional disease, yet more or less encouragement is to be derived from the curable or incurable nature of the primary affection.—Thus when arising from gastric affections, plethora, irritation, inanition, &c. a cure may be expected; but when arising from paralysis, the sequel of fever or epilepsy, severe constitutional disease, acute or chronic, cerebral congestions, operation of noxious agents, &c. it is less curable. It resembles the ordinary gutta serena, or idiopathic palsy of the retina, which appears at all periods of life, and exhibits no defects but the gaping and motionless pupil, and lack of physiognomical expression; with these exceptions the eye is often remarkable for its brilliancy.

Metastatic Amaurosis. This is rare but well defined. The restoration of the original malady, if it be practicable without involving the patient's safety, or the substitution of an artificial excitement or discharge, which may serve as an equivalent, appears to be the natural indication, and such a practice has been attended with success; but the prognosis is uncertain.

The third or proper functional Amaurosis, presents great variety, but if treated early is often relieved. The extremes of light and heat, vivid colours, over-exertion of the organ, are its chief causes, the cure of which depends upon their removal.

Functional amaurosis varies in its rate, progress and extent; some attacks are sudden, others slow and steadily progressive, though these last are more incurable than rapid cases, provided there is no organic defect.

The *muscæ volitantes*, or imaginary floating particles, before the eyes, *nyctalopia* and *hemeralopia* (or night and day blindness,) *myopia* (short sightedness,) *diplopia* (double sightedness,) &c. &c. are only different forms of amaurosis.

Treatment.—This will in a great measure depend upon the nature of attack, and the length of time the patient has laboured under it; the frequent recommendations of ether, vapours of various kinds, ointments, &c. will now meet but few supporters. In cases of general plethora, bleeding is required, and perhaps in every attack, when great weakness does not prevail, cupping on the temples will be found serviceable; blisters applied alternately over the superciliary ridge, temple, mastoid process, and nape of the neck, and a seton in the neck, or an issue in the arm, may be occasionally advantageous; but in all cases where great debility exists, the tonic plan of treatment must be adopted in lieu of all these measures; the mineral acids, the sulphate of quinine, and the other preparations of bark may here prove highly useful. Searpa gives the preference to the emetic practice whenever the gastric organs are concerned in the production of the disease, and to a certain extent he may be followed, but not to the exclusion of mercurial alteratives and the saline purgatives. In the hands of some practitioners, mercury has been very efficient, administered in such quantities as just to touch the mouth. In addition to any remedies the precise nature of the case may demand, it will always be proper to recommend, in addition, a perfect repose of the organ, a pure and dry atmosphere, perfect tranquillity of mind, and great regularity of the bowels; and in numerous instances, the cold bath, gentle exercise on horseback, and a light and nutritious diet, will form valuable auxiliaries.

CANCER OF THE EYE.—See *Cancer*.

FUNGUS HÆMATODES OF THE EYE.—See *Fungus Hæmatodes*.

EXTIRPATION of the Eye.—This operation is required, chiefly in cases of cancer and fungus hæmatodes; it may, however, be necessary when the eye protrudes from the orbit, as in staphyloma and hydrophthalmia, not only on account of the irritation and disfigurement occasioned, but in the fear that the orbit itself may become affected, when assistance would come too late. The following is the mode in which this operation may be performed:—The patient should be placed either on his back with his head resting on pillows, or seated in a chair with his head supported by an assistant. The surgeon standing on the opposite side of the patient, to that on which he is about to operate, with the fingers of his left hand placed at the external angle of the orbit, draws the integuments outwards, while with his right hand he passes a straight-bladed bistoury horizontally beneath the outer angle formed by the union of the two palpebræ, and by turning its edge and cutting out, he separates them from each other, and divides the integuments to the outer angle of the orbit; then introducing a hook, or a curved needle armed with a strong ligature, through the globe of the eye, he draws it a little way out of the orbit, and passes his bistoury beneath the upper

lid about the middle of the orbit, from whence he cuts inwards, and completes the circle by carrying the instrument at one sweep round the globe of the eye, the assistant alternately raising and depressing the upper and under lids. By this circular incision the muscles attached to the globe are divided, when the optic nerve and other adhesions may be severed with a pair of curved scissors. The lachrymal gland, situated on the upper and outer side of the orbit, should now be seized with the hook and dissected away, which concludes the operation. A small piece of sponge or lint within the orbit will, in general, easily restrain any hæmorrhage, and the parts may afterwards be lightly dressed.

When the palpebræ are engaged in the disease, it will of course be necessary to remove them also, and to effect this, a hook should be passed from above downwards through both lids, as well as a part of the globe of the eye, which is to be drawn forwards, when the bistoury is introduced above the upper eye-lid, and the operation conducted as before.

Two important circumstances demand attention in this operation, firstly, to remove every particle of disease, and secondly to avoid piercing or injuring the orbit.

Any inflammatory symptoms succeeding, will demand general or local bleeding, and if much pain remain, an anodyne, and the application of a soft poultice in a muslin bag will afford relief. The lint introduced to restrain hæmorrhage should only be retained as long as it is necessary. A light compress, wet with cold water, or the liquor plumbi superacctatis, will frequently be all that is required locally, nor will any thing further than a low diet for a few days, and an occasional saline aperient be demanded constitutionally.

For further information on the diseases of this organ, see the works of Travers, Guthrie, Wardrop, Searpa, Ware, Sir W. Adams, Saunders, the lectures of Lawrence, and numerous other authorities.

FAINTING.—See *Syncope*.

FALLING SICKNESS.—The vulgar term applied to *Epilepsy*, which see.

FALLING OF THE WOMB, ANUS, &c.—See *Uterus, Anus, &c.*

FEBRIFUGES, (febrifugus, from febris, a fever, and fugo, to drive away.) That class of medicines, administered with a view of abating the paroxysms of fever, such as the preparations of antimony, ammonia, and nitre; the vegetable acids, cold affusion, and cool air.

FENNEL, (fœniculum.)—An herb of the class Pentandria, and order Digynia. Carminative in operation, but seldom employed.

FEVERS, (*Febres*, from ferveo, to burn.)—Fever is the most general, and in many of its forms the most fatal of all the morbid affections to which the human body is liable. It appears under such a variety of

circumstance, and presents so many and such diversified aspects, as to render it a subject of frequent doubt in the minds of the most experienced; not that it is difficult to detect the existence of fever, for its invasion is ever accompanied by signs which it is impossible to misunderstand, but the confusion of type that sometimes prevails, the presence of some peculiar symptoms, without an apparent cause for their production, the absence of others, which we have been accustomed to regard as the leading features of the disease, all contribute to confuse the judgment, and prevent that separation of varieties, and that clearness of definition, demanded by the importance of the subject. Fever admits of the four following genera, which are assumed from the character of duration of each:—

I. *The Diary Fever.*

II. *The Intermittent Fever.*

III. *Remittent Fever.*

IV. *Continued Fever.*

To which may be added a fifth, the *Exanthemata* or *Eruptive Fevers*.

I. THE DIARY FEVER, (*Ephmera*), is the slightest form of the disease, and rarely exceeds twenty-four hours in duration; it may be subdivided into the *mild*, the *acute*, and the *sweating* varieties.

The *mild diary fever*, occasioned by an excess of muscular exertion, long protracted study, violent passion, and suppressed perspiration, is characterized by general irritation and lassitude of the system, a hot and dry skin, thirst, an indisposition to solid food, nausea, and a slight acceleration of the pulse; towards evening, all these symptoms increase, but at night or towards morning they decline, a gentle perspiration breaks out, a quiet and refreshing sleep succeeds, and the patient awakes restored to health. The sole *treatment* necessary, may be comprised in the directions, to abstain from animal food, to open the bowels by a dose of the neutral salts, and to remove the heat of the skin by diluents and small quantities of ipecacuanha, which will increase the power of the aperient, as well as effect a gentle diaphoresis.

The *acute diary fever* may arise from the same causes as the former acting more powerfully when some morbid condition of the stomach and bowels prevails, or it may derive its immediate source from intemperance either in eating or drinking; the attack commences with a sense of chilliness, sometimes increased into severe and frequent rigors, the succeeding heat is considerable, the face red and bloated, and the head affected with an acute, or dull and heavy pain; the pulse at first is small, but afterwards full and strong, great languor prevails, and the urine is high coloured, depositing a sediment of an orange hue.

Treatment.—An emetic may be administered to unload the stomach, and afterwards an active cathartic to clear the alvine canal; in general

this will be sufficient, and the fever will subside on the second day ; when this is not the case, the attack is apt to run into the continued fever, and must be treated accordingly.

The sweating fever, as the memorable pestilence of 1480 in England was termed, and of which an excellent account is afforded by Dr. Caius, the medical historian of his time, has never been recognized upon the continent of America ; from the above period it continued in England and most of the countries of Europe, with more or less intermission for nearly a century, its last appearance being in 1551. It was strictly speaking an ephemeral fever of extraordinary malignity, running its course in a single paroxysm, the hot and cold fit proving equally fatal ; the patient commonly escaped if he reached the sweating fit. The *treatment* consisted in exciting the sweating stage as quickly as possible, and supporting the system with cordials, throughout the course of the fever. It was generally supposed to have arisen from a specific miasm in the atmosphere, added to inclement weather and bad harvests, and was highly contagious.

II. INTERMITTENT FEVER—*Ague*—is characterized by distinct paroxysms or periods of fever, with a perfect intermission of all the symptoms between each, a constant tendency to a recurrence of the paroxysm existing from the first ; the interval is generally regular, so long as the disease continues, and the affection is not contagious. The common cause of intermittents is generally attributed to the febrile miasm issuing from marsh lands, where great decomposition of vegetable matter has taken place, but to assert that this is the only source of the disease, is to deny the influence of other potent agents, and draw too general a conclusion, when in reality we have but few facts capable of explaining the frequent production of intermittent ; for, not only do we discover its existence in situations where it can readily be accounted for, but we find it prevailing elsewhere when not a cause for its appearance can be detected. Intermittents run their course in hot as well as in cold countries, in high lands as well as in vallies, sporadically as well as epidemically, are sometimes called into action by sympathy, and at others by contagion : numerous facts could be named to justify these assertions, and in fact to prove, that although marshy miasma is the most fruitful parent, yet that the affection may be traced to causes beyond it. The usual varieties into which intermittent fevers have been divided, are 1. *The Quotidian*. 2. *The Tertian*. 3. *The Quartan* ; to which may be added two additional species, 4. *The Irregular*, and 5. *The Complicated Agues*.

In all these varieties, the shorter the intermission, the longer is the paroxysm ; the longer the paroxysm, the earlier it commences in the day : and the more durable the cold fit, the less durable the other

stages; thus, the quotidian has a longer paroxysm, and a shorter interval than the tertian; and the tertian a longer paroxysm, and a shorter interval than the quartan; and again when the quotidian has the longest duration, it has the slightest cold stage, and while the quartan has the shortest duration, it has the longest cold stage, and is the most difficult to cure.

The Quotidian Ague is distinguished by its paroxysm returning every twenty-four hours, generally commencing in the morning, and its usual duration being under eighteen hours; a genuine quotidian is a rare form of the disease, and when described, has been too often confounded with the variety termed the double tertian. The quotidian intermittent presents several varieties of attack; it may be *partial*, and confined to one particular part or organ; *catenating*, when it associates with, or gives rise to other affections, such as rheumatic pains, particularly lumbago and sciatica; *protracted*, when the intermission is so short and imperfect, as not to leave the patient clear of febrile symptoms, before the next attack approaches; *anticipating*, when the paroxysm precedes its antecedent period usually by about two hours, and this at every recurrence, so that the accession may be thrown into any hour of the day or night; *retarding*, when the paroxysm delays its antecedent period by about two hours, and this also at each recurrence, so that the accession may arrive at every hour of the day or night.

The quotidian ague is frequently observed as a symptom in hysteria, catarrh, peripneumony, ischury, quinsy and other diseases.

The Tertian Ague, which is most frequent in the spring and summer months, has an intermission of about forty-eight hours, the paroxysm generally commencing at noon, its usual duration being under twelve hours: as the quotidian is mostly common to infants, and persons of delicate habits, so the tertian ague chiefly affects adults and individuals of a robust constitution, particularly those of a biliary temperament; it admits of two varieties, the *catenating* and *protracted tertians*, to both of which terms, the explanation given to similar ones under the head of quotidian intermittent, may be applied. As an accompanying disease, it is chiefly found united with cerebral affections, indicating some oppression of the brain, or with cholera or dysentery, proving in most instances some irritation or congestion in the liver.

The Quartan Ague, the intermittent of the autumnal months, is distinguished by its intermission of about seventy-two hours, the paroxysm commencing in the afternoon; its usual duration being under nine hours: this is the most obstinate of all the species; persons of advanced years and melancholic habits are the most subject to it; it offers the following varieties:—the *catenating*, the *protracted*, the *anticipating*, and the *retarding quartans*; which terms, as before explained, apply as closely to

this affection. This species is frequently met with as a symptom in abdominal diseases, particularly those of the liver and spleen ; it likewise occasionally interchanges with dysentery, which was exemplified in the fatal and epidemic disease that raged in Ireland in 1818.

The Irregular Intermittent is characterized by its intermission and paroxysm, possessing but little regularity, and the former being more than seventy-two hours ; the several varieties are designated as the five-day ague, the six, seven, eight, nine, and ten-day ague, and the vague and irreducible ague ; many of these are singularly obstinate, and in the irregularity of accession, present an additional difficulty to be overcome.

The Complicated Ague is that form of intermittent, which however intricate in appearance, is composed of types, not uniformly resembling each other, but recurring in alternate sets, every set being true to itself, while it differs from that, with which it alternates, in the duration of its intervals, in its paroxysms, and in the time of accession. From some of these varieties returning every day, they have occasionally been mistaken for quotidian, but they are, in fact, double or triple tertians or quartans, discovering their real nature to an experienced eye, by these alternating distinctions. The following are the varieties of complicated ague :—*The double tertian*, where the paroxysms of one tertian occur in the intermissions of the other ; the two sets displaying a difference of duration or violence. *The triple tertian* is a double tertian taking place as before, but one of the sets having regularly two paroxysms on the day of its return, and the other, one alone. *The double unequal tertian*, where one set evinces a more perfect, the other, a less perfect intermission. *The duplicate tertian* is a single tertian with two paroxysms on the regular day of attack, the intervals being of ordinary duration. *The double quartan* ;—here the paroxysms of one set occur in the intermissions of the other, with a difference of duration or violence, and an interval on the third day alone. *The triple quartan*, consists of a single quartan with regularly returning paroxysms, while each of the intervening days is marked with a slight or separate attack. *The duplicate quartan*, consists of a single quartan, with two paroxysms, on the regular day of attack ; the intervals being of ordinary duration. *The triplicate quartan*, consists of a single quartan, with three paroxysms on the regular day of attack, the intervals being undisturbed and of ordinary duration.

The *symptoms* of intermittent fever, no matter what type is assumed, are essentially the same ; they may be described under three different states, the cold, the hot, and the sweating stage.

Symptoms of the cold stage. Languor, lassitude, listlessness, debility, yawning, stretching, paleness ; the features appear diminished in size.

and the skin generally constricted ; the secretions and excretions diminished ; the pulse small, frequent, and irregular, and respiration short and anxious.

A sensation of cold, begins in the back and extends itself over the body, though sometimes confined to a particular part, with convulsive shaking ; after an indefinite continuance of which, the *hot stage* is ushered in by a gradual return of heat, at first in transient flushes, but soon succeeded by a steady burning heat above the natural standard. The skin becomes tense, red, and swollen, and tender to the touch. There is now a preternatural acuteness of sensibility, with pains in the head and different parts of the body ; the pulse quick, strong, and hard ; tongue white, great thirst, and high-coloured urine.

The *sweating stage* dawns with a moisture on the face and neck, which soon becomes general. The heat now descends to its natural standard. The pulse is full, free, and less frequent, the urine deposits a sediment, respiration becomes free, and all the functions are restored to their natural order. After a specific interval, according to the species of ague, a fresh paroxysm ensues, runs the same course and terminates in the same way, leaving great debility between the fits.

In some of the species of intermittents, the symptoms are more striking than in others ; in the tertian, for instance, the chill during the cold fit is intense, with convulsive shivering, rigidity, and gnashing of the teeth ; in the fourth or fifth paroxysm, there is frequently an eruption about the lips, which continues for a few days ; in the quartan intermittent, the cold fit is not so severe, but of longer duration, and when it yields, the succeeding hot fit is troublesome rather from its dryness than intensity, and this is rarely succeeded by a sensible perspiration ; there is also a heaviness or dullness in the head, but not an acute pain, and in the intermediate days, a sense of soreness over the body

The duration of intermittents in the system is uncertain ; the spring agues usually disappear at the approach of summer, while the autumnal ones are more obstinate ; it is said that when an ague has become habitual, its removal must be attempted with great caution, as its abrupt suppression may lay the foundation of other diseases, particularly paralysis, visceral affections, and even sphacelus. A peculiar consequence is sometimes occasioned by a long-continued quartan ague, in an affection of the spleen, which becomes highly congested, and so hard to the touch as to receive from the vulgar the name of ague-cake. Intermittents, considered solely as such, are seldom of much danger to life ; an accession might certainly be so violent as to occasion very alarming symptoms, as long-continued syncope, apoplexy, or acute spasms throughout the whole system, but in general the consequences are to be dreaded rather than the attack, as producing great irritation,

and, at length, congestion in some of the organs vitally important in the animal economy.

Treatment.—The antispasmodic class of medicines, and chiefly those of a stimulant, sedative, and relaxant character, have been freely administered by some practitioners during the paroxysm, with a view to shorten and weaken it, and the bitter and astringent tonics have been employed through the intervals, in order to strengthen the constitution against a recurrence. In order to fulfil the first indication, garlic, mustard seeds, capsicum, ammonia, black and white pepper mixed up with spirit, have been resorted to as stimulant antispasmodics; laudanum as the most powerful sedative preparation of the same class; and ipecacuanha and the antimonial preparations as relaxant antispasmodics. Of late years, it has been the practice to combine relaxants with opiates, and the Dover's powder has been the usual, and in many cases, the successful form of such combination; to ensure its full operation, it should be administered in a full dose two hours before the paroxysm is expected, together with a sweating draught of carbonate of ammonia; this will sometimes anticipate the cold fit by a profuse perspiration, and thereby entirely prevent the attack; bark should then be freely given as a tonic, and continued for a few weeks. Whenever relaxants or diaphoretics are employed, they should be assisted by copious draughts of any mild and warm diluent, and by placing the patient between blankets, as without these precautions, the most active sudorific will exert but little power. The intermission of the paroxysms, however, being the great object of every physician, in the treatment of this fever, and opinion having concurred in regarding debility either as its proximate or predisponent cause, nearly every medicine has yielded to the use of bitter and astringent tonics, as the surest remedies to prevent the recurrence of periodic attacks; of this class of medicines, the Peruvian bark has long been deservedly preferred, and within the last few years, we have been enabled to give it a yet more extensive trial than before, in the form of the *sulphate of quinine*, which may be administered in a larger proportionate dose than the bark itself, and without the inconveniences formerly experienced in its use, by persons of delicate habit, and children. The preparation of *quinine* consists in the separation of a peculiar bitter alkali, from the woody fibre of the yellow bark, and afterwards neutralized into a salt by means of sulphuric acid; a substance called *cinchonine* is formed from the pale bark, but inferior to the former, both in strength and efficacy. The dose of sulphate of quinine may vary (for an adult) from two to five or even ten grains; still more has been occasionally administered without any ill effects, such as nausea, head-ache and vomiting, which it is described as sometimes producing. Dr. Elliotson (in the 13th volume of the *Med. Chir. Trans.*) mentions

the successful treatment of one hundred and fifty cases of ague with this sulphate, given under all circumstances, and adopting at the same time any other measures required by the symptoms, especially when the fever was complicated with any other disease; that physician discovered that quartans seldom yielded to less than five grain doses repeated every four hours, continuing this practice for a week or ten days: he usually commenced his treatment by giving ten grains just before or after the paroxysm, and then continuing the above doses. M. de Martin (in the *Revue Medicale* for September 1827,) asserts that in those cases, where the stomach is so irritable as to forbid its administration, it may be finely pulverized, mixed with cerate, and then applied to a blistered surface, producing similar effects as an internal dose. A variety of other remedies have been proposed, such as the bark of the *carapa*, peppers, the celebrated medicine of Morton, (consisting of chamomile flowers, the salt of wormwood, and the calax of antimony,) myrrh, opium and arsenic, which last is still employed by some practitioners in large hospitals where the price of quinine interferes with its frequent use; gentian, cascarilla, nux vomica, and the metallic oxides; these have all given place to a medicine upon which we can place a firmer reliance, and which has disappointed us less frequently than any of the preceding. In most cases it may probably be correct to clear the stomach or alvine passages, preparatory to its use, and during the term it is in operation; we have the authority of Dr. Baillie for recommending grain doses of calomel for eight or ten nights successively.

III. REMITTENT FEVER is that form of disease in which the febrile symptoms are clearly remitting, but without an entire intermission; a paroxysm occurring every twenty-four hours. Its two principal species are the *mild* and the *malignant remittents*, the former usually proceeding from fatigue, cold, or exposure to the rays of the sun acting upon an infirm state of health; the latter arising from marsh miasm or human contagion, and chiefly prevailing during the autumnal months in warm countries. There is yet a third form of the disease in which the peculiar remitting character of the fever is more distinctly marked than in either of the former species, *hectic fever*.

1. *The Mild Remittent* is most frequent amongst individuals of debilitated habits and sedentary occupations; it is generally preceded by some visceral derangement, and, as well as the more malignant kind, is prevalent in the autumnal season. The disease commences with drowsiness and languor, a slight chilliness is soon succeeded by flushings, the skin being dry and hot, without the slightest approach to perspiration, the thirst great, with a sense of nausea and a loss of appetite.—Towards evening the exacerbation approaches, the pulse quickening, the heat increasing, and at length terminating in a partial sweat, which is

however not indicative of any crisis, as the skin continues dry at its termination, and the pulse is accelerated; where the disease is left to itself, the symptoms increase in severity, the head occasionally is oppressed, but more commonly some of the abdominal viscera, particularly the liver, until, as in frequent instances, a cholera supervenes and relieves the system of its load. The usual duration of this fever is from a week to a fortnight. The *treatment* may be limited to a course of active purgatives, of which the mercurial are the best: five grains of calomel, given two or three times a week, with diaphoretics in the intervals, will generally lower the pulse, and subdue the heat and restlessness; the administration of tonics, especially the mineral acids, easily completing the cure.

The remittent fever of infancy is a variety of this species of disease, and has been generally ascribed to the presence of worms in the intestinal canal; this cause may undoubtedly lead to its production, but we may in general regard an accumulation in the first passages as its ordinary source; hence, digestion proceeds imperfectly, there is great irritation and languor, the belly becomes tumid and painful, nausea prevails, the head is hot and heavy, the skin pale and livid, with frequent flushings of the cheeks. It has been remarked, that when the exacerbation takes place in the night, there is wakefulness and continued jactitation; if in the day-time, drowsiness and stupor.

The necessary *treatment* is sufficiently simple, where the disease is checked at an early period, and consists solely in the employment of purgatives, such as calomel or gamboge; these in addition to light nutritious food, free air, and quiet, will produce a convalescence in eight or ten days. We occasionally discover symptoms more severe in their nature and longer in continuance, arising from a neglect of the child's situation; these will, of course, demand a stricter attention, although the purgative plan, even in the worst cases, must form our principal mode of relief.

2. *The Malignant Remittent* embraces four varieties. 1. *The Autumnal Remittent*. 2. *The Yellow Fever*. 3. *The Burning*, and 4. *The Typhous Remittent*.

1. *The Autumnal Remittent* is the common fever of most countries, occurring towards the fall of the year, and has been frequently ascribed to marsh-miasm: we however see it too constantly in situations where such a cause could not exist, to permit us to regard that specific poison as its sole parent; we are aware also that in every climate where the heat is considerable in the summer months, that the animal frame after being exposed to it becomes relaxed and debilitated, that the nervous energy is to a certain degree prostrated, and that the general functions of the system are feebly and laboriously performed; and viewing debi-

lity as the proximate cause of this fever, we are in possession of circumstances accounting for its production ; the heat of the season may act with far more intensity upon some organs, than upon others, and perhaps no one organ is so likely to be affected as the liver ; hence, bile is inordinately secreted, and again absorbed and carried into the circulation, and in tropical climates, in such large quantities as to occasion the tawny hue so common amongst residents in such situations ; a considerable portion of bile also passing off by the intestines, lays the foundation for that diarrhœa, already described under the title of bilious ; the liver from this excitement is apt to become congested from subsequent torpor succeeding as a natural consequence to the former state, and this produces a disturbance in the balance of circulation, rarely if ever existing without fever. The frequency of a derangement in the alvine canal has induced some authors, and particularly Broussais, to look upon an actual inflammation of the viscera, and especially of their mucous membrane, as the existing cause of fever, but this is to mistake a symptom for the source of the disease, and in fact to confound the cause with the effect. In addition to the weakened state of the body, after the heats of summer, we find during the autumnal months, sudden changes of temperature, inundations from equinoxial gales, covering a wide space with foul and stagnant water ; thus damps, and transitions from heat to cold aid the previous influence of the rays of the sun by operating unfavourably upon a body already enervated by them. Marsh-miasm may possess an influence in the production of this fever to a certain extent, more especially on low lands, and in very hot and rainy seasons, whilst in some instances it would appear as if each cause had some share in its appearance.

The attack commences with lassitude, yawning, and a feeling of soreness over the whole body, and as the causes before detailed have produced their principal effect upon one principal organ, we witness a disturbance therein almost in the first stage ; the head sometimes being visited with severe pain and heaviness, the stomach at others excessively irritable, and rejecting every description of aliment, or the bowels being overloaded with bile, and discharging copious and frequent stools ; in general the stomach suffers more than any other organ, although a debilitating looseness of the bowels, resisting every attempt to restrain it, will often accompany its disturbance ; occasionally, however, the stomach remains in a state of quietude, and the bowels torpidly costive, the head suffering in proportion to the absence of symptoms in those situations. The exacerbation commonly takes place about noon, the pulse and heat increasing, and continues through the afternoon and the early part of the night ; there is rarely any chill previously to the exacerbation, and as seldom any perspiration when it terminates, and during the unquiet

slumber that succeeds, a slight degree of delirium is not uncommon. As the disease advances, the symptoms become more distressing, and are particularly obstinate, scarcely yielding to the most powerful remedies; the coolest and most refreshing drink is at once rejected by the stomach, laudanum exerts but little influence in procuring sleep, and no astringents restrain the debilitating looseness; thus the fever continues until the fourteenth or fifteenth day, when, if no favourable change take place, the prognosis is unfavourable.

Treatment.—An early emetic, whether there be sickness or not, should never be omitted, as one of the most powerful means for procuring a determination to the skin, and this may be followed by a cathartic, if the bowels have not been freely moved by the subsequent operation of the emetic; it is only when the commencement of the fever is very strongly marked, when the individual is of a plethoric habit, or when it is apparent that some considerable organ is affected with effusion or congestion, that the use of the lancet is demanded. Should the tongue be very dry, and present a red appearance at the edges, great irritation of the mucous membrane of the intestines is indicated, and when the dejections are loose, yellow, and gritty, a state approaching to ulceration is denoted; leeches and blisters should therefore at once be applied to the abdomen, and small doses of ipecacuanha, or of the compound powder of chalk administered, preferring as the safest aperient, castor-oil, with a few drops of the tincture of opium. During the whole continuance of this fever, the distressing heat may be alleviated by frequently sponging the limbs with water or weak brandy and water; small doses of antimonial powder in effervescent draughts will, when they can be retained on the stomach, assist in exciting a gentle diaphoresis, and whenever such an event is accomplished, the succeeding exacerbation is lessened in violence; where no perspiration is induced by these measures, eight or ten drops of the tincture of digitalis may be added to the antimonial draught, at the same time endeavouring to check the sickness by a few drops of laudanum, and keeping the bowels gently open, where costiveness prevails, by rhubarb and the sulphate of potass. Blisters will rarely be found of much avail, and in most cases, will rather add to the irritation of the patient; they should never therefore be employed, except when urgently demanded as topical applications or as stimulants in the last stage of debility. The mineral and vegetable acids may be employed with advantage, as sedatives and refrigerants, if not forbidden by visceral inflammation; circumstances may also arise demanding a free use of stimulants, for instance, when the fever continues beyond the fifteenth day in spite of every effort to subdue it, the stomach rejecting all nourishment, and the diarrhoea unceasing, so great a degree of debility ensues, as to threaten a fatal re-

sult; in such a case old Madeira or port wine may be administered in small quantities, or given in sago, tapioca, &c. and often with success.

The Yellow Fever, so called from the peculiar tawny tint, thrown over the surface of the body from an early stage of the disease, is not only the most severe form of remittent fever, but also one of the most fatal visitations to which mankind is subjected. Deriving its origin from miasm, generated from different sources, it is especially the scourge of those countries exposed to great solar heat, and possessing large tracts of swampy soil. It is a fever undescribed by the ancients, and appears to have originated with the slave trade, the dates of both corresponding; how far a connection may be established between them, in the presumption that the seeds of the disease were introduced by a coloured population from the African to the European and American continents, and that the fever is decidedly of African origin, it is impossible, from the want of data, to determine. Making its appearance in Barbadoes in 1647, it rapidly spread to the other islands of the West Indies, and at length, in 1693, visited Boston; the year 1793 was marked by its extension to Europe, since which period it has acquired a dismal celebrity for its frequency and fatality in the southern portions of the United States, and in the West Indian Isles; until the year 1800, Europe was tolerably free from its ravages, and the former attack was regarded as a circumstance of peculiar singularity, but since that period, it has frequently occurred, particularly in the southerly parts of Spain, and some of the Islands in the Mediterranean, and within a very short time, the British government have had to regret the loss of a considerable number of her troops, who fell victims to this minor plague at Gibraltar. To whatever primary source the yellow fever is owing, there can be no doubt, that it is now produced from the miasm arising from the decomposition of putrid matter, and that it is extensively propagated by the miasm parted with by infected bodies. The term by which this fever is commonly designated, is merely descriptive of one of its peculiar symptoms, and is therefore liable to some objections; different authors of different countries, and describing it under different circumstances, have assigned other appellations; for instance, it has been named, the *American*, *St. Domingo*, *Barbadoes*, and *Antigua fever*; the *Bulam fever*, on the coast of Guinea; the *Hooghly* or *jungle fever* of India; the *Mal de Siam*, when it extends still further east; the *Hungarian* and *Andalusian pestilence* in those countries; the *fievre matellote* by some French writers, on account of its frequent attack among sailors; the *vomito prieto* or black vomit, by the Spaniards, from the colour of the evacuations of the stomach, and the *paludal fever* by some authors, from its source being derived from marsh-lands; Professor Frank, of Manheim, regarding it, and justly so, as an intense variety of the ordinary autumnal malignant,

of temperate climates, styles it, in accordance with his theory, the *febris gastrico-nervosa*: to conclude this catalogue, we have but to mention its common name of *yellow fever*, as applied to the worst examples, and the phrase of *seasoning*, which is limited to those slight attacks experienced by most visitors to those countries where it is endemic. Considerable discussion has arisen, whether the fevers recognised by the above names, are really all of precisely the same type; the Bulam fever of Africa, in particular, has received a specific character that would, if admitted, almost exclude it from an identity with the yellow fever; it has been said that the Bulam fever differs from the genuine yellow fever in its miasm being more volatile, and therefore more readily communicable to distant spots; that it does not require so great or so continued a heat for its generation, and yet that the symptoms are more severe, and the result more rapid; the same authorities argue that the essential yellow fever is the seasoning fever of tropical climates, varying in degree from the mildest to the most acute varieties, that it does not extend beyond the soil on which it is generated from miasm, and therefore, that the fatal fever that has occasionally appeared in Spain, Hungary, and at Gibraltar, is not the yellow fever of the West Indies or of New-Orleans, but the Bulam species, or some fever perfectly analogous. One thing is certain, although a few may not admit it, that the yellow fever has never been generated in the above places; positive evidence has been adduced to prove its importation in every instance, and as this is the very reverse of the circumstances under which the pure yellow fever of the West Indies appears, we may probably be correct in admitting a difference between the two, although it may be of so slight a nature, as hardly to be recognizable either in symptoms or practice; instances may also undoubtedly occur, where the Bulam or Hooghly fevers might be received into the West Indies, from whence disease would spread at an equal ratio with the endemic of the Islands, and thus some confusion arise in the description of each, where the appearance and symptoms would bear so strong a resemblance. However correct the conclusions of some authors on this subject may be, and however wide the distinctions may be drawn between the fevers of different countries, we are compelled to admit, that there are numerous points of similitude in all, and as one symptom is generally present, the peculiar colour of the skin, we may, as it is at best but a disputed point, treat of the whole tribe, under the term, *Yellow Fever*.

A great distinction between this disease and the ordinary malignant remittent may be observed, both in the manner of its production, and in that of its diffusion; in the first place, the miasm producing the former is less subtle, neither rising so high, or spreading so far as the latter.

thus making a nearer approach to the miasm of human effluvia; in the second place the greater tenacity of the miasm retains it in those situations in which it exists, particularly where lofty trees, or thick groves are in the neighbourhood of a pestilential swamp. Marshy lands are not however the sole situations where the miasm is generated; local circumstances may rapidly occasion its production, particularly heavy rains succeeded by intense heat; in the vicinity of jungles, or woods that arrest the vapour as it ascends; a foul state of the holds of vessels in hot climates is frequently sufficient, and even the sides and summits of high hills with uneven surfaces for the rain to stagnate in and become exposed to the action of the rays of the sun, may give rise to the poisonous effluvia. The miasm thus produced, readily communicating to the animal economy, is again passed off, and perhaps more completely elaborated, to communicate itself by contagion; it is asserted that to render the yellow fever contagious a heat above 80° of Fahrenheit is required, and in Europe it has been remarked in particular, that it never appeared but at times when the atmosphere resembled that of the tropics.

Symptoms.—The attack known as the seasoning fever, which resembles in every respect the more severe variety, denominated the yellow fever, with a proportionate mitigation of the symptoms according to the attack, is ushered in with a sudden prostration of strength, and a degree of anxious restlessness for which the sufferer cannot account; within twelve hours more decided symptoms appear, such as faintness, giddiness and chilliness, the last never amounting to a rigor; a high degree of feverish heat immediately succeeds, with tumultuous beatings in the arteries, particularly in the carotids and temporals, flushings in the face, excessive thirst, heaviness and darting pains in the head, redness, and a sensation of burning in the eyes, the tongue white, and after the vomiting sets in, tinged with yellow; the pulse quick, sometimes full and strong, at others weak and uncertain, and the skin hot and dry, with occasionally a partial and momentary moisture. Pains extend from the head down the small of the back, and often to the thighs, the stomach is affected from the first with a nausea, which increases with the disease to a distressing and uncontrollable sickness, rejecting every article of refreshment, and discharging bilious matter with the rejected aliment; the respiration is heavy and hurried, accompanied by deep sighing, and the urine is small in quantity and high coloured. This constitutes the first or inflammatory stage of the fever, which continues from twenty-four to sixty hours. The second stage commences with an abatement of some of the former symptoms, and an increase of others; the restlessness will cease, and the patient sink into slumber; the heat subsides, and is sometimes replaced by a chilliness, without, however, in-

creasing to a rigour, which occurring in some few cases may be regarded as salutary, and likely to terminate the disease at this stage by perspiration, or copious bilious discharges from the stomach and bowels; a yellow tinge now appears in the eyes, and on the neck and breast, the retchings increase in violence and turn porraceous, the pulse becomes slower, although it may retain its former hardness or softness, the skin soft and clammy, the urine still smaller in quantity, and darker in colour than before, the tongue either dry and discoloured, or furred and moist, and the eyes glassy: there is also great confusion of intellect and frequently delirium. This stage sometimes continues only a few hours, sometimes from twelve to forty-eight, but never longer. In the third and last stage, the pulse sinks, and becomes unequal and intermittent, and occasionally very quick; the vomiting is redoubled in violence, and great straining and noise is occasioned, while the matter ejected, called from its colour, the black vomit, bears a resemblance to the grounds of coffee; the breathing becomes more oppressed, the tongue black, the eyes hollow and sunk, cold clammy sweats ensue, the mouth and temples first, and gradually the whole body is rendered of a yellow hue. The fatal result of this dreadful disturbance of the animal economy, is now not far distant; subsultus tendinum, black urine, and deadly coldness of the limbs follow; delirium, hemorrhage from the mouth, nostrils ears and eyes, set in, and black bloody vomiting and stools, vibices, hicough, muttering, and coma, are the immediate precursors of death. The foregoing are the usual train of symptoms observed in this fever, by which it is evident that the abdominal organs are chiefly affected, particularly the stomach from its constant irritability, and the liver from the yellow tint of the skin. Dr. Jackson has however described the Andalusian variety as affecting first the brain, and the abdominal organs consecutively, and in some instances the disease will commence with greater violence, rushing at once to the second stage we have described, and, in many cases, where the third stage rapidly succeeds, proving fatal in twenty-four hours. Yellow fever is nearly in every instance contagious, although a few exceptions may perhaps be made to the general rule. The disease may exhibit all the types of febrile attack, occurring as a remittent, intermittent, or continued fever, sometimes ceasing in four or five days, and at others terminating as an intermittent by a copious and salutary diaphoresis. Recovery is not an exemption from second attack, although it may be a partial protection, and, in general, a recurrence is of a milder character. In the description of the yellow fever that raged in Philadelphia, in 1793, Dr. Rush described two sources of infection; exhalation, and contagion, the former spreading at the distance of three or four hundred yards, while the latter only extended across the streets.

Treatment.—The definitions of this disease have not been more numerous, than the plans for its alleviation and cure ; one class of authorities, dreading the debility that is always experienced in the latter stages, deprecated the use of the lancet, and after the administration of emetics and purgatives, resorted to the use of bark in unusually large quantities, opium, and even wine and spirits as diffusive stimulants : others, regarding the disease as purely inflammatory, have employed the lancet with an unsparing hand, calomel in large and repeated doses, the cold affusion, and have even proceeded so far as to recommend, upon what principle we know not, the jolting motion of a cart, or horse exercise ; in addition, minor authors in promulgating their theories, have brought forward specific plans of treatment, enlisting remedies culled from the three kingdoms of nature in their support. The mode of procedure, even amongst those who are agreed in the necessity either of a depleting or stimulating plan of treatment, is not constant ; some practitioners advocating extensive bleeding at the onset of the fever, and some advancing the propriety of a gradual venesection, whilst on the other side mercurials in particular have been cautiously or freely exhibited, or the stimulant plan varied in administration.

Yellow fever, appearing under different varieties of type and with different degrees of intensity, undoubtedly demands as strict an attention to its peculiar circumstances, as any other acute disease, and as extensive a plan of modification in our treatment ; there are certainly many cases, where the debility from the first is so alarming, and typhous symptoms so apparent as to restrain the prudent practitioner from the use of the lancet, whilst other instances, on the contrary, demand its prompt and frequent employment, as the only means of arresting the attack ; from these discrepancies probably have arisen the diversified plans of authors, who have erred, not in the treatment of a particular case, but in drawing an analogy between the one, and the numerous other instances occurring in different situations and under different circumstances, and framing their remedial process accordingly. Perhaps the most general mode of treating this fever at present, is to withdraw a considerable quantity of blood at one evacuation, in the earliest stage, (unless it be expressly forbidden by the extreme debility of the sufferer) and to continue the use of the lancet afterwards, if a due impression have not been made upon the system by its former employment ; to procure plentiful discharges from the bowels, and to excite mercurial ptyalism as early as possible. Dr. Chisolm, who is regarded as a standard English authority in the treatment of yellow fever, thus impressively advocates the administration of mercury :—" Let it never be forgotten," says he, " that at whatever period of the disease salivation is excited, whether the supposed signs of putrefaction have appeared or

not, the accession of it is the certain signal of cessation of disease, and of returning health." In the British armies in both Indies, this recommendation has been sedulously attended to, and it has, upon the whole, produced happier effects than other and milder treatment; the cold affusion has likewise been adopted in some cases, where the mercury was not pushed so far, and, as it would appear, with considerable advantage. The physicians of England have relied more upon the excessive power of mercury, than those of other nations, who have in general been content with its operation as a cathartic, either alone or in combination with jalap or rhubarb. A new champion has lately appeared in the medical arena, to doubt both the propriety of our pathology, and our treatment of the disease, in the person of Dr. William Steevens, many years a practising physician of Santa Cruz and St. Thomas', and now attached to the staff of the Danish Governor of the former island; this gentleman's opportunities of investigating the nature of yellow fever have been extraordinarily great, and he has brought to the investigation of the subject, a clear and well tutored mind, divested of all undue partiality for a favourite theory, and only anxious for the promulgation of his views, and the trial of his principles, as affording the surest criterion of their correctness. The circumstances that first drew the attention of Dr. Steevens in an especial manner to the consideration of the pathology of this fever, were the following:—he had long observed the nature of the contest between skill and disease, and in repeatedly witnessing the triumph of the latter in defiance of every means suggested by the former, had almost arrived at the conclusion, that the yellow fever was indeed specific in its cause, nature, and fatality. The editor was assured by Dr. Steevens, that in numerous instances, the exertions of the physician served only to aggravate the disease, notwithstanding the most approved treatment, conforming to the practice of the day; that many cases to which medical aid was not summoned, absolutely appeared under more favorable symptoms, than those receiving the strictest attention; and that in short, no matter whether the affection was treated as inflammatory, demanding the depleting plan, or as arising from debility, requiring stimulating measures;—whether calomel was given as a sialogogue or an alterative, the usual melancholy result proved the inadequacy of all.

In a considerable number of examinations of bodies who had died in the yellow fever, Dr. Steevens observes that he "could not detect any trace of disease, either in the brain, the stomach, the intestines, or any of those organs, whose derangements are generally supposed to be the cause of fever:" other authors have described appearances in all the principal cavities, sufficient in their opinion for the production of the symptoms; the membranes or the substance of the brain itself have

been remarked in a state of extreme vascularity; the stomach and intestinal canal affected with congestion, erythematous inflammation, or rupture of their coats; the lungs in a state of engorgement, or the urinary organs made the seat of disease. The mucous membrane of the alimentary canal has been held to be the organ most frequently injured, especially by the French pathologists, with M. Broussais at their head, and yellow fever has accordingly been regarded as a consequence of its inflammation, and denominated *une gastro-enterite*. However visionary such a theory may be, we cannot deny, that in numerous instances the mucous membrane of the intestines is affected, although we may rather regard such a circumstance as occurring in the course of disease, as the effects of the febrile action upon a delicate texture, than as a proximate cause of the fever itself. Dr. Steevens, however, has been frequently unable to detect the slightest morbid appearance in any cavity or on any surface; in fact, he has found the solids of the whole body uninjured, and apparently not under the slightest effects of disease. This discovery naturally conducted him to an investigation of the fluids, and particularly to an examination of the contents of the heart; "here," says he, "the cause of death is evident, for we find in place of blood, a dissolved fluid, nearly as thin as water, almost as black as ink, and evidently so diseased as to be totally incapable either of stimulating the heart or supporting life. In both cavities, the fluid is equally black, and in the whole vascular system, all distinction between arterial and venous blood is entirely lost." This discovery, so opposed to the principle that the nervous system was principally engaged in the production of fever, and so utterly subversive of the theories of the school of Broussais, led to accurate analyses of the diseased fluid, and in a series of interesting experiments Dr. Steevens proved, that the condition of the blood was owing either to a great diminution or total loss of the saline matter, invariably found in healthy blood. On submitting the blood withdrawn from a person in health, to tests, it was very evident that all the saline qualities resided in the serum, and that the crassamentum was totally destitute of them, and in order to prove how much the colouring matter depended upon their presence, a small quantity of the muriate of soda, the nitrate of potass, or indeed any of the alkaline salts, restored the red colour after the separation of the clot; the experiment was continued upon the fluid taken from the heart of a patient who had died in yellow fever, and so altered was it from its natural appearance, as hardly to be distinguishable from the black vomit taken from the stomach, when, upon the addition of the same re-agents, it was at once changed to a bright arterial colour. Dr. Steevens, assuming as a fact, that in cases of bad fever, the loss of the saline or preservative power, appears to be, in every instance, the chief cause of the entire dissolution of the vital fluid,

endeavours to supply the want, as much as possible, by the administration of saline medicines, and he observes, that when they are afforded, the increased excitement of the early stage of the disease being lessened, and in conjunction with proper nourishment, the bad symptoms are nearly prevented. "Saline medicines," says he, "do not fret the stomach, act gently on the intestines, keep up the various secretions, particularly those of the kidneys, whilst enough is absorbed to enter the circulation, and prevent the dissolution of the blood, preserving it until the fever abates, and the danger is past." Without entering more particularly into the merits of Dr. Steevens's discovery, it is sufficient to observe that the practice has been as successful as its warmest admirers could desire, having stood the test of many hundred cases, in which the neutral salts* have been exhibited, both by the doctor and his friends, and with scarcely a single death, when they were called in within the first twenty-four hours after the attack; and with very few, when they were summoned to the bed-side, previously to the commencement of the usually fatal symptoms. If further proof were wanted, it might be obtained from the experience of Dr. Greatrex of Trinidad, who, acting upon the principles advocated by Dr. Steevens in a military hospital containing three hundred and fifty cases of essential fever, was sufficiently happy to save the whole number. Dr. Steevens will very shortly offer the histories of his theory and experience to the public, and to those will we refer our readers, in the conviction that much light will thereby be thrown upon a subject that has hitherto been enveloped in as much doubt as fatality.

3. *The Burning Remittent* is another variety, the history of which is brought down from the days of Hippocrates; it commonly attacks the young and robust who have been much exposed to the heat of the sun, severe fatigue, or to the excesses of diet in a warm country. Miasm has also been assigned as a cause for its production, and from its frequent occurrence in the autumn, as well as the resemblance of some of its symptoms, to those of yellow fever, the supposition is probably correct. The great distinction, however, between this disease and the yellow fever, consists in the burning heat being more intense, while the thirst is extreme; the stomach is not so irritable, and vomiting tends to the relief of the accompanying nausea, and the chilliness, which, in the yellow fever is only accompanied with a shuddering sensation, is, in the other, attended with a sharp rigour, frequently terminating in a copious and salutary perspiration. The duration of the fever is also shorter, seldom extending beyond four days, and then, if left to itself, going off

* The carbonate of soda is generally preferred, in doses of a tea-spoonful dissolved in water, and taken every two or three hours.

by diaphoresis, vomiting, diarrhœa, or nasal hæmorrhage ; when, however, these crises fail, the case commonly ends fatally. Medical history furnishes us with many examples of this fever prevailing in different situations ; sometimes appearing to arise from the same febrile miasm as yellow fever, and running its career conjointly, as occurred in St. Domingo in 1796, and at others owing its origin, "on a light and dry soil, and a sandy rock," to the generation of miasm from the accumulation of water after continued rains, with the collateral aid of ill-ventilated barracks, and currents of cold air, blowing upon the troops in a state of perspiration, as reported to the British Army Medical Board, from St. Christophers in 1812. Captain Franklin, in his Narrative of a Journey to the Shores of the Polar Sea, likewise notices the presence of this fever, amongst the Chipewyan Indians, giving credit to the same causes for its production.

The burning remittent fever is generally accompanied with much disturbance of the stomach and intestines, and Professor Frank has therefore denominated it "the febris gastrico-inflammatoria." The name *causus*, as attached to it by Hippocrates, is sufficiently indicative of its nature, and his allusion to the fever which he describes as being characterized by extreme heat, violent thirst, a rough and black tongue, a complexion inclined to yellowish, and a bilious saliva, establishes the identity between the disease of ancient and modern times. The head is visited with an acute aching, and nausea, with frequently a gnawing pain in the region of the stomach, prevails ; the bowels are costive, particularly at the commencement, and the tongue, nostrils, and indeed the whole surface, are parched and exceedingly hot ; the pulse is strong, the voice hoarse, the breathing short and quick, with sometimes a short cough, and occasionally delirium. Old persons are less subject to its attack than adults, in whom it occurs as before expressed, generally from the effects of marsh miasm, aided by long exposure to the heat of the sun, a sudden check to perspiration, great mental or bodily fatigue, or intemperance. In some few cases, the skin will assume a tawny appearance, which had led to the error of regarding this and the yellow fever as the same.

Treatment.—It is highly expedient to act both with promptness and decision in the management of this fever ; the unassisted efforts of nature will frequently relieve the system of the load that oppresses it, and the sooner we assist her operations the better. Blood-letting may be safely performed, and to a considerable extent ; the physician being governed in the quantity withdrawn, by the state of the pulse. The bowels must be freely opened, and probably calomel is the best medicine that can be selected for the purpose, and, if combined with antimonials or Dover's powders, it will contribute in hastening a diaphoresis. Under

proper regulations, the application of cold is highly serviceable, whether in exposure to the air, the administration of cooling drinks, or frequent ablution. In all circumstances, the remedial measures must be quickly and vigorously performed; the violence of the fever admits of no delay but at the risk of the patient's safety.

4. *The Typhus Remittent*, or the *Asthenic variety*, is distinguished from every other, by the serious nervous depression that exists from the commencement of attack. It has prevailed to a melancholy extent as an epidemic both in Europe, especially in the Spanish cities of Cadiz and Malaga, and in the tropics, and unquestionably derives its origin either from a decomposition of marsh or human effluvium; the latter source has been the most productive, and naturally so; the filth, poverty, perhaps famine, of a large city, the crowded population, and a continuance of heat and moisture being potent auxiliaries. This fever is likewise the common pestilence of armies, reduced by want and suffering; Sir John Pringle records numerous instances, and De Haen has afforded a striking example of its fatality in the Prussian army in the middle of the last century, in the neighbourhood of Breslaw. Dr. Chisholm has applied the name of the malignant pestilential fever to this disease, considering it as the typhus of Europe, engrafted on the yellow remittent fever of the torrid zone, and justly styles it as the most tremendous of all the tropical diseases. The reports of the Edam remittent of 1800, and that of Trinidad in 1819, are peculiarly illustrative of the character of the fever:—"The patient with little previous notice, was seized with giddiness and cold chills, great sense of weakness, pain over the orbits, and in the epigastrium, together with vomiting. He frequently fell down and was insensible during the paroxysm, his body covered with a cold clammy sweat, except the pit of the stomach, which always felt hot to the palm of the hand; the pulse was small and quick; great torpor in the intestinal canal; the pupil dilated and incontractile; great despondency at first, then low delirium or insensibility to danger. The patients while in Edam, (an island in the Zuyder Zee,) were carried off in eighteen, twenty-four, thirty, or forty hours, though often, when removed, not till after as many days. So malignant indeed was this pestilence, that almost every one who slept on the island a single night died. The organs chiefly affected were, first, the brain, and in succession, the stomach and liver."

In the Trinidad remittent, "so reduced was the vital energy, that it was judged expedient in various instances, to give the patient three bottles of brandy in the twenty-four hours, and to continue this portion for several days."

Treatment. The use of the lancet has generally been considered inadmissible, from the extreme depression that is present in the earliest

stage; we would not, however, be understood wholly to condemn it, since a congestion in any one particular organ may peremptorily demand its employment; but, as in every case of typhoid disease, the strictest care is necessary, lest in attempting to relieve, we only hasten destruction.

Active purgatives and cold applications are the desirable remedies in this disease; the first as tending to restore the balance of the system, in diminishing the action of the viscera, and removing the torpor of the vessels on the surface; and the latter, as the most refreshing tonic that can be exhibited. Cold water as a beverage is eagerly craved for, and may be abundantly supplied, and cold injections may also be administered with advantage.

However customary it might have been in former times to recommend bark, but few patients could retain it in its nauseous form upon the stomach, and hence its use was in a great measure rejected; but the sulphate of quinine may be offered both with safety and convenience, and in the expectation of a favourable result, if the powers of life are not too much exhausted. Ablution, or even cold affusion has likewise been advised, and may be cautiously practised. We gain little by the wholesale administration of stimulants; potations of old hock, or any other weak wine, will be more agreeable to the patient, and answer a kinder purpose than repeated doses of brandy.

The practitioner, notwithstanding all his care, will too frequently confess the inutility of treatment in a disease where the nervous power is so early and so completely prostrated; he will find in books as many rules for the treatment of this disease, and as many theories on its nature, as have been submitted for the yellow fever, but he will do well in rejecting all general hypotheses, to adapt his treatment to the circumstances of each particular case.

HECTIC FEVER may appear either in an *idiopathic* or *symptomatic* form, the first presumed to arise from a peculiar diathesis or temperament of the system, without any local cause to account for its appearance, and the second, in consequence of some local disease, and generally an incurable one.

1. *Idiopathic Hectic*, as it has been described by John Hunter, exists as an original and constitutional affection, chiefly amongst those individuals who are characterized by a fair skin, blue eyes, light hair, lax and delicate fibre, and sanguine disposition, and in such it is probable that the causes of other fevers will operate differently on them, and occasion hectic; thus, diseased actions of the heart, stomach, liver, mesentery, lungs, or other organs, a suppression of cutaneous eruptions or exanthemata, a sudden stoppage of an habitual discharge, or chronic inflammation, may all arouse it into action. It is not an uncommon

sequel to the measles, small pox, and scarlet fever. In opposition to the doctrine, that hectic prevails as an original affection, it is still asserted by some authors, and particularly by Professor Thomson, the author of "Lectures on Inflammation," that hectic fever is in every instance connected with the absorption, or at least with the formation of pus; when we consider, however, the numerous cases of diseased hip and knee joints, tuberculated lungs, &c., and witness the effects of hectic, long before the process of suppuration sets in, we can hardly admit the necessity of absorption. But Professor Thomson goes even farther, and asserts, that in those cases where there is no external suppurating wound, the formation and absorption of pus is alike necessary for the production of hectic; whilst Dr. Percival of Dublin, on the contrary, maintains that he has witnessed instances of idiopathic hectic, for three months before any pulmonary affection was manifested. It appears somewhat difficult to arrive at a fair conclusion between these rival authorities; on the one hand we have Dr. Thomson's own admission that pus is a bland and harmless fluid, that it may exist in many situations without giving rise to hectic, and that when it is apparent and finally leads to the destruction of the patient, no portion can be detected in the blood: on the other hand, it is most difficult to imagine that it can arise and continue with its peculiar train of symptoms, without a cause somewhat analogous to that, which establishes it at other times, and from other circumstances. A peculiar delicacy of fibre undoubtedly leaves the system to a certain degree unprotected, and hectic is most likely to supervene, whether pus be absorbed or not, when any considerable disturbance has taken place. The pulmonary affections noticed by Dr. Percival may in fact have been latent, and capable of producing an incipient hectic, and so of other examples; the mischief within may have been cloaked, while its effects were apparent, and thus, however ready the disposition to encourage the approach of hectic, it probably does not exist alone, or before the disease of which it may almost be pronounced a symptom.

2. *Symptomatic Hectic.* The former description of this fever is open to objections from which this variety is free, and it may still be doubted whether the definition of symptomatic will not apply to every form of hectic; if we are correct in describing the fever always as a consequence, and never as a cause, still retaining the impression of a constant predisposition existing in some individuals, we shall discover it in phthisis, hepatitis, or any of the acute inflammations of important organs, when suppuration has commenced; in the scrophulous diseases of joints, in the affections of the spine, or as the result of accidents, whenever the formation of pus is occasioned by any of these circumstances; we shall detect it as an effect of the eruptive fevers, and in short be-

hold it nearly in every instance, when the constitution has been greatly irritated, the production of sympathy and so great a degree of weakness, as to retard the efforts of the system in regaining its former balance.

The Symptoms of each variety so closely resemble one another, even allowing the nice distinctions of some authors, that they may be described under one head. Hectic fever appears, in the purest form, in phthisis pulmonalis, and sometimes bears a strong resemblance to intermittent fever; in its first stage it is almost imperceptible, or if any change take place in the appearance, it is accomplished in so slow and insidious a manner, as hardly to be suspected; the earliest recognizable symptoms are, a loss of appetite, a sense of weariness and languor after slight exertion, emaciation, and an increase of the pulse. As the fever increases, the symptoms become better marked; the pulse is small and gains in frequency, quickening towards evening by about twenty beats in the minute, and readily increasing by food or exercise; the debility becomes more distressing, the skin moist and clammy, the tongue of a bright red colour at its edges, and the papillæ prominent and swollen, and seldom so much furred as in other fevers; nausea and even vomiting will sometimes occur, profuse perspirations, especially at night, frequent chills and flushings of heat, and occasionally diarrhœa. The principal exacerbations generally occur about five or six o'clock in the evening, and are preceded by chills, with a peculiar and pungent sensation of heat in the palms of the hands and soles of the feet; the hot stage does not invariably follow, and what is very remarkable in this fever is the occasional sudden return of the chill, even after the hot stage has commenced; a copious sweat usually succeeds the exacerbation, except when a diarrhœa appears in a later stage. After hectic has prevailed for some time, a circumscribed redness is seen in the cheeks, having a more abrupt outline than the bloom of health; the eyes acquire an unusual brilliancy, and in the remission the whole appearance is calculated to deceive the inexperienced, and foster hopes that never can be realized.

It is still a disputed point, whether the urine is affected in hectic, some authors describing it as pale and limpid during the hot fit, and as containing the reddish sediment of uric acid, when voided after the sweats; whilst others will admit of no rule in this respect, and have observed both its clear and turbid appearance at any stage of the disease. It may be observed that the first attacks of this fever are somewhat regular both in occurrence and duration, but they soon lose this type and become uncertain. Hectic is never wholly intermittent, the pulse seldom falling below a hundred beats in the minute. In some con-

stitutions, when the biliary system is unaffected, the digestive powers remain unimpaired to the last.

Treatment. This must be regulated in a great measure by the nature of the cause from whence hectic arises; in numerous cases, where the irritation of a scrophulous joint excites it, and where a destructive supuration is established, it is in vain to attempt a cure, unless at the expence of the member in which the disease exists, and the same observation holds good in those instances, where the same mischief is the result of accidents, such as compound dislocations or fractures. It will frequently be a subject of serious reflection, how far our exertions may be employed in the preservation of a limb, when the constitution is evidently suffering from the effects of local disease, but an anxiety on the part of the patient to avoid a painful operation, must never induce the surgeon to postpone the only remedy in his power, beyond the time when it would be of service; we are aware how rapidly hectic ceases after an amputation, however violently it may have raged before, and how soon the system recovers its former vigour; and this knowledge must ever prompt us to an early use of the knife, when the necessity of an operation is admitted. Medicine exerts but little power in restraining the progress of hectic; when the weakness is very great, a judicious administration of tonics may sometimes be attended with benefit, but as the principal object is to moderate some of the most pressing symptoms, such as diarrhœa or perspiration, we do little in combating the disease itself. The Peruvian bark at one period was considered almost as a specific against this fever, and it was accordingly administered in all stages, and sometimes in enormous doses, but in our day we have learned to disregard its use, unless for the purpose of improving the tone of the digestive organs. With this view, the sulphate of quinine may be given in small repeated doses, adding a few drops of dilute sulphuric acid to each draught. Even when diarrhœa is not present, the utmost caution is necessary in the exhibition of purgatives, and the neutral salts in particular must be avoided, giving the preference to castor oil, or a little rhubarb and magnesia. The preparations of steel, digitalis, and hyoscyamus have been likewise extolled, but undeservedly, and are now but little employed. The combination of opium and myrrh has been recommended with greater justice, when slight tonics are required: the first of these medicines is useful in relieving pain, checking diarrhœa, when it exists, and in procuring sleep; the second acts as an expectorant. We may however look to medicine in vain, when the hectic is an effect of phthisis or any other acute disease; it is in fact a fatal symptom, and although in some degree it may be mitigated, it can never be remedied. It is hardly necessary to add that the employment of the lancet is rarely required, and never, unless in-

inflammation attack some important organ. Nourishing food, a residence in a salubrious air, mild exercise, gentle cordials, and if the night sweats be severe, the dilute sulphuric acid, and likewise small doses of opium and myrrh, are all that we can justifiably recommend.

IV. CONTINUED FEVER is that form of disease, in which there is an uninterrupted continuity of febrile phenomena, with no marked exacerbation or remission. It includes three varieties, according to the general arrangement; *the common continued fever*, (*Synochus* of Cullen,) *the inflammatory continued fever*, (*Synocha*,) and *Typhus*. In order, however, to avoid repetition, we propose to consider the subject under two heads, each divided into two species:—

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|-----------------------------|---------------------------|
| 1. <i>Synochus mitior</i> , | 2. <i>Typhus mitior</i> , |
| <i>Synochus gravior</i> . | <i>Typhus gravior</i> . |

1. *Synochus (a mitior* is the result of various causes, of which the effects of cold, sudden alternations of atmospheric temperature, and contagion are the principal; it is common in most countries in the spring and autumn, when the changes in the weather are greatest, and the frame not sufficiently protected against the access of cold and damp, and once in existence, it rapidly spreads amongst those who are confined to the same atmosphere with the affected, especially if they are exposed to the same exciting cause. An attack of this fever is usually denoted by a loss of energy and lassitude, sometimes so slight as to be disregarded even by the sufferer; an uneasiness and restlessness succeed, and usher in the first painful symptom, which is experienced in the back, loins, and limbs; the countenance becomes dejected and pallid, and the features shrunk; the slightest decrease of temperature produces a distressing sensation of cold, which even prevails occasionally in a heated room or warm bed, amounting to rigour in some instances, and in others only to chilliness. The pulse in the first stage is generally more languid than in a state of health, and the respiration shorter and quicker, especially after motion, when it will increase almost to panting. The second stage now approaches, and is denoted by a total change in many of the symptoms; the pulse, which before was weak, now becomes strong and full, but without much hardness, the chilliness of the surface is replaced by an unnatural heat, which attacks different parts of the body at different times, and the pallor of the countenance disappears, to be succeeded by a flush extending in many instances over the whole scalp. The mouth is dry and parched, the tongue covered with a white fur, which progressively increases in extent and thickness until it becomes of a dirty ash colour, great thirst is complained of, and vomiting of bilious matter is not unfrequent; the evacuations from the bowels are scanty, of a hardened consistence, and very fetid, the urine high coloured and small in quantity, whilst the pains

in the back and limbs are greatly augmented; the head now becomes affected with pain, slight at first, but rapidly increasing to a severe degree, the sensorial functions disturbed, as evinced sometimes by a preternatural watchfulness, or by a depression of the senses; the eye is intolerant of light, the ear of loud or unusual sounds, and the sense of touch is either morbidly sensible, or confused. The former restlessness is greatly aggravated, and the sleep disturbed, unrefreshing, and frequently interrupted with delirium. In the detail of these symptoms, it is evident that the head, the lungs, and the mucous membrane of the stomach and intestines, are affected, and such is the case in nearly every attack of continued fever; it has been observed that neither exacerbation nor remission occur, and this is the fact, notwithstanding a slight increase of the heat of the skin towards evening, but without such an occasion of excitement as to justify the distinction of being called an exacerbation. In the generality of cases this fever terminates favourably about the end of the second week, although considerable weakness prevails for ten days or a fortnight longer, and the recovery is commonly not complete under the fourth or fifth week, the system during this period gradually shaking off the oppression that has existed, and resuming the exercise of its various functions. We occasionally remark an instance, where at the end of the second week, no perceptible improvement takes place, but the patient on the contrary becomes weaker, and in a few days is in a state approaching to insensibility; little pain or even uneasiness is complained of, and ultimately, the debility increasing, death occurs, and apparently from exhaustion. This termination is rare, except when aged persons of feeble constitutions are the subjects of this fever, and upon examination after death we shall commonly discover that disease has preyed upon some vital organ, although we could not detect its ravages during life.

Synochus (b) gravior may arise from the same causes as the milder variety, or, as frequently occurs, succeed to the synochus mitior in consequence of the supervention of inflammation in certain organs. The progress of a case, severe from its commencement, or which has passed from a mild into an acute attack, is always accompanied with, or dependent upon, some changes taking place in the brain, spinal cord, lungs, or the mucous membrane of the intestines, one of these organs being in general more affected than the others, although in some instances they all appear to be equally involved. When this fever is combined with cerebral affection, it may appear either in a mild or an acute form, commencing, when of the first kind, with all the symptoms of synochus mitior, and continuing stationary for some days; the pain is often not severe at first, however aggravated it may become, and thus while the concealed yet fatal mischief is advancing, the inexperience

judgment is often deceived into the opinion that the symptoms of mild fever alone prevail. We are aware that the most extensive changes may take place in the brain and its membranes without severe pain being experienced, but whenever *any* degree of suffering is complained of, for a successive space of time, especially when it is referred to some particular part, such as the forehead, the temples, eyes, or the occiput, and even when no pain whatever exists, but a giddiness in the early state of this fever prevails as its substitute, we may be sure that some morbid change is taking place within the cranium, the effects of which will be shortly visible; and where pain is combined or alternates with giddiness, a more severe affection is indicated than if either existed alone; whilst these symptoms prevail, the heat of the surface is naturally increased, and especially in the neighbourhood of the seat of pain; the expression of the eye is duller and heavier than in the milder form of fever, the conjunctiva in a state of greater vascularity, while the whole organ is much more intolerant of light; the hearing becomes doubly sensible, the restlessness greater, and the pulse stronger. The state of the tongue and of the evacuations, in this form of the disease, does not materially differ from that observed in the former. When the cerebral attack is acute, all these symptoms are aggravated to a great degree; in particular, the pain of the head is intense, the giddiness violent, and the uneasiness insupportable, and while in the milder form, the disease runs on from eight to fifteen days, this seldom exceeds the fourth day: the former terminates either in an abatement of the most distressing symptoms, or by a mere exchange of the pain for a dull and confused sensation, which corresponds to a great diminution of consciousness; insensibility ensues, attended with delirium, the pulse becomes quicker yet weaker, and at length signs of disease in the thoracic and abdominal cavities appear, and in the majority of cases, quickly terminate existence; we may occasionally witness a recovery, even after this stage, but such a circumstance is so rare as scarcely to justify the slightest hope, when the cerebral affection has proceeded thus far. The latter, or the acute attack, may be said to be invariably fatal, and the pain having ceased on the fourth, it generally terminates in death about the seventh day, previously to which, delirium has increased to a degree requiring restraint, subsultus tendinum has followed, now and then ushering in general convulsions, until insensibility has passed into stupor and coma, occasionally accompanied with stertorous breathings.*

* There is always less indication of thoracic or abdominal affection than in the milder form, from the circumstance of the intensity of the cerebral disease obscuring the derangement of other organs: dissection, however, points out the ravages committed in those situations, although not one symptom may have been observed during life.

There are perhaps few cases of fever in which the mucous membrane of the bronchi is not more or less affected, and in the synochus gravior especially, we frequently find it the seat of disease; it is readily detected by the existence of a pain in the chest, slight or severe according to the violence of attack, dyspnœa, an inability to inspire deeply without difficulty, a cough, which aggravates the suffering, sometimes dry, and sometimes accompanied with frothy mucous expectoration: the respiration may be slow at some periods and quick or even hurried at others; the mucous rale is usually discovered from the increased secretion of the mucous membrane of the bronchial tubes, and through an accumulated mass of which the air has to pass. The pulse is generally weakened, though quickened, ranging from eighty to a hundred, and seldom sharp, and as the disease advances it rises in frequency, still becoming weaker; the tongue is foul and moist in the early, but dry in the later stage of the disease; the skin of a dusky colour, and commonly not so hot as when the fever is combined with cerebral attack, and an early state of insensibility, together with delirium and incoherent wanderings of intellect, is a very constant evidence of this state of the system.

The mucous membrane of the stomach and intestines is likewise generally affected in synochus; in the mild form of fever the attack is slight, and passes off without producing any material change, but in the severer kinds, it becomes prominent, and adds greatly to the danger, both from the aggravation of the other symptoms, and the importance of the structure itself, to the economy of the system. When at an early period of the disease the bowels are constipated, (and they are generally so, some days prior to attack,) and suddenly fall into the opposite extreme, and nausea, vomiting, and severe pain set in, we may be assured that the morbid action is principally directed towards the abdominal cavity, and even when pain is not present, we have still an infallible guide to point out the circumstance of abdominal affection, in the pain upon pressure, and especially when it is made over the epigastrium; when pain exists, it is seldom continuous longer than the tenth day, and thus, like the cerebral affection, where the suffering ceases after a few days' endurance, the giddiness being retained, we have an absence of former pain, but still an exquisite tenderness on pressure; as the pain lessens or ceases, the vomiting increases, and in all abdominal cases, the tongue is of a bright or vivid red colour, sometimes extending over the whole of the member, at others confined to the edges or tip, while the middle is loaded with fur of a dirty yellow or ash colour; the thirst is at first not distressing, but it gradually becomes so, and the teeth and lips sordid; when, (though it rarely happens, the tongue is of a darker or duller tint, with less fur on its body, and greater

dryness, thirst prevails from the commencement, and sordes affect the teeth sooner and in larger quantity. The abdomen is generally harder than usual, the pulse without any peculiar character, neither ranging above or sinking below the usual standard. Recovery from synochus, when the abdominal affection is severe, may be considered a rare circumstance, but where it does take place, one very remarkable sign of amendment is an increased tenderness of the abdomen on pressure, proving, not that the disease in the intestine is increasing, but that the affection of the brain, which always accompanies the former in some degree, is lessening, and therefore that the stimulus of pain is more readily acknowledged. In the usual melancholy terminations of the disease, the pain in the abdomen will sometimes suddenly return a few hours before death, and the pain on pressure become more acute; violent vomiting and hiccough accompany this change, together with a highly excited pulse, and extreme restlessness.

There may be a few cases occurring in the practice of almost every physician, where synochus appears without any peculiar attack upon any one organ in particular, from the extent of disease distributed over all, and we cannot doubt that in some instances, so intensely visited are the cerebral, the thoracic, and the abdominal organs, as to preclude any one set of symptoms from display; let the doubt and confusion in an endeavour at detection be ever so great during life, no sooner are we enabled to inspect the situations of disease than we discern its visible effects; each organ will then be found to have suffered from its own specific disease, which has proceeded with regularity, no matter whether it prevailed alone, or in conjunction with another; the system has suffered from all, but each individual structure has borne and suffered under its own load. The symptoms of a mixed affection need no farther description; they consist in an union of all those terrible circumstances already detailed, although they are seldom or never so apparent, and as each former variety when acute, is confessedly so severe in its character, and so dangerous in its nature, it is not surprising that a fever to which the morbid states of all the most vital organs contribute, should be more terrific in its invasion, and more deadly in its effects.

Treatment. We have purposely deferred the consideration of the treatment of synochus, until all its varieties had been described, in order to avoid unnecessary repetition. The common continued fever requires but little medical aid, for there is no organ so much affected as to need a powerful remedy to overcome its disturbance; confinement for a few days to the bed, low diet, a purgative at night of calomel and rhubarb, followed by a dose of castor oil in the morning, and these measures continued for a day or two, are all that is necessary to effect

a cure. But, whenever the fever passes beyond the mild stage, or commences in an acute form, a very different and a far more active treatment is necessary; no matter in what organ excitement be present, there is invariably a tendency to terminate in inflammation, and to prevent this, must be our chief care; in almost every case of acute synochus, the lancet is our principal dependance, and bleeding cannot be performed too early to the necessary extent to subdue pain, wherever it exists. If after the withdrawal of sixteen or twenty ounces of blood, the excitement be not subdued, the same quantity must be abstracted in three or four hours afterwards, and if, from a continuance of the excitement, it is probable that it has already passed or is about passing into inflammation, the same means must be again employed to retard its progress. The timid use of the lancet is a most pernicious practice, as the disease has only been checked for a short time, to return with greater violence when the energies of the system are less able to contend with it, and accordingly we too frequently discover about the third day after bleeding, when it has not been carried to the necessary extent, the approach of typhoid symptoms, when more liberal venesection would have established convalescence. When bleeding has produced a decided impression without completely removing the prominent symptoms, the use of cupping-glasses or leeches may complete what has been commenced by the lancet. Purgative medicines, particularly calomel and rhubarb, administered so as to produce three or four stools a-day, and an occasional dose of castor oil or the senna mixture in the morning, will be required after the bleeding. The practice of carrying purging to an excess can hardly meet with too much censure; the safety of the patient is in fact compromised by too frequent evacuations, and the strength is wasted in a vain attempt to subdue the disease. Cold sponging when the skin is hot, acidulated drinks or the saline draught when thirst prevails, perfect tranquillity, a diet consisting of thin gruel or any other light food, and when the restlessness is extreme and the rest much disturbed, from ten to twenty grains of Dover's powder, will comprise all that is required until the period of convalescence. In those cases where the disease has been trilled with in the first place, or where assistance is not sought until inflammation has proceeded so far as to threaten disorganization of the organ attacked, the treatment must be regulated with the utmost caution, and upon the nicest principles of pathology; so long as any pain exists, if the pulse be not weak and hurried, the prudent use of the lancet may be justifiable, in order to stay the inflammatory action ere it effects a destructive change of structure, but should this fail in retarding the process, it co-operates at once with the disease in depressing the powers of life, and destroys the small chance of recovery that existed before. Where pain is not present

after an acute attack of fever, it is probable that a change of structure has been accomplished by the inflammatory action ; still, this may not in all cases have proceeded so far as to be necessarily fatal, although the powers of the system may be so overpowered, as to require the aid of stimulants to enable them to recover their former energy ; in such cases the vascular system is weak, and the nervous and sensorial functions are also prostrated. We witness in the exceeding depression, and in the feeble, quick, and easily compressed pulse, a state requiring the support of a moderate quantity of wine, and if, at the same time, the skin be cool and moist, the tongue not very dry, and the delirium confined to incoherence, we may place additional confidence in the employment of such a stimulus ; the administration of a few ounces will decide upon our correctness in ordering it, for should the heat, restlessness, and delirium increase, its farther use is of course forbade, while an improvement in the symptoms, generally quickly recognizable, will justify its continuance. When wine is clearly indicated, and yet fails in producing any effect, brandy may be substituted, but neither in large quantities ; the good they perform can be accomplished by small portions, and less risk attends a cautious practice, should the system suddenly rebel under the treatment. Opiates are occasionally useful, but the judgment of the physician must seize the proper time for their exhibition ; whenever the skin is hot, the tongue dry, or the motions of the patient violent, they are manifestly improper. The free use of mercury has sometimes been resorted to, when all other means had failed in producing the least sign of amendment, and especially when the attack has been cerebral ; but from the extreme difficulty of bringing the system under the action of this medicine when the sensorial powers are in a state of depression, we can seldom depend upon it ; when, however, we can affect the salivary glands, the success is frequently astonishing, and under apparently the most hopeless circumstances. In the cerebral attack, the cold affusion has occasionally proved of signal benefit in reducing the excessive heat of the surface, and abating the acute pain ; in the thoracic attack the employment of tartar emetic has lessened the force and diminished the extent of bronchial inflammation, and in the abdominal attack, leeches and afterwards poultices may be applied, or a flannel moistened with the oil of turpentine ; the hydrargyrum cum creta, in conjunction with Dover's powder, may be administered to restrain the diarrhœa, or if this fail, an anodyne enema : should blood be mixed with the stools, the infusion of roses, rendered a little stronger by the addition of a few drops of sulphuric acid, may check the hæmorrhage, and the farther addition of a drachm of the tincture of hyoseyamus to each draught, will tend to sooth the irritation of the patient ; when copious discharges of blood

alternate with constipation, the mildest laxatives must be cautiously administered, for the powers of life are so prostrated that three or four stools excited by purgatives are sufficient to destroy them. One or two drachms of castor oil, is then all that can be given with perfect safety. With respect to these latter observations, which apply to the earlier stages of fever rather than to the period when inflammation has exerted its influence, it is necessary to observe that the remedies they advocate must be considered as adjuncts only, capable of exerting considerable power in connection with the lancet, but of little value when employed as single or principal agents.

As we remarked that little is required in the mildest form of synochus, so may we assert that when it prevails in the most intense degree little or nothing remains to be done. The symptoms proceed with giant stride to the most alarming height, and beyond the reach of aid; the withdrawal of an ounce of blood is fatal, the use of the cold affusion worse than useless, the power of mercury may not be exerted, and the patient dies without one hope arising in the mind of the physician, and in defiance of every remedy his skill can suggest.

2. TYPHUS FEVER.—This peculiar and dreaded form of disease may arise from any of the ordinary causes of fever operating upon a constitution in which there is a great deficiency of sensorial power, or it may appear as a sequel to one of those acute attacks where the same debility has been occasioned by the process of inflammation. It would be hardly possible for an inexperienced observer to consider synochus and typhus as at all connected, and yet we find that the condition of the organs attacked is the same in both, however widely the symptoms may differ: the real distinction consists in the difference of intensity of each, one running its course gradually from the mildest to the most severe symptom, and the other passing over the early stages to arrive at one point, when the energies of life are attacked, and fearfully grappled with. Typhus, like synochus, displays itself in two varieties, mild and acute, attacking the same organs, and with different degrees of force.

Typhus (a) mitior, or, as it was formerly termed, *the low or slow nervous fever*, from the extreme languor and dejection accompanying it, is not otherwise peculiarly distinguished from the slightest febrile attack, during its earliest stage; the tongue is only slightly affected, the pulse but a little quickened, and smaller than usual, so that were it not for the decided impression made upon the sensorium, we might hesitate in asserting its typhoid character. The increase of the symptoms, however, soon relieves us of any indecision upon the subject; we observe the sensorial debility increase, the skin moist, clammy, and perspiring, yielding an offensive odour, the heat still inconsiderable, and the countenance pale and sunk: about the tenth day the weakness still in-

creases, the limbs tremble, and are sometimes agitated by convulsive movements, the mind is reduced to a pitiable state of despondency, and at length a low and muttering delirium sets in: thus may the disease run on until the twenty-first day, or even to a longer period. It is seldom marked by a crisis, but every symptom becoming more aggravated, it reaches a fatal termination, or slowly advances towards convalescence, as the worst appearances gradually recede. Typhus, still corresponding in its nature with synochus, may be attended with cerebral, thoracic or abdominal affection. When the sensorial powers are the principal object of attack, the early prostration of the mental faculties is very striking, a confusion and stupor prevail, while at the same time a bodily weakness is as fully displayed; the chilliness is greater and of longer continuance than in synochus, the succeeding heat not so great, the restlessness incessant, the face pallid throughout, the eye devoid of its usual lustre, the vessels of the conjunctiva injected, and the countenance visited by an expression so indicative of weakness, anxiety, and suffering, as to tell at once the character of the disease. Acute pain in the head is seldom complained of; a dull uneasy sensation and giddiness are its usual substitutes, but pains in the back, loins, and extremities are frequent, and sometimes severe. Insensibility ensues from the third to the eighth day, with the delirium and convulsions before mentioned; the tongue becomes dry by degrees, assuming a darker colour, until it is nearly black, and fissured into deep chaps; the lips and teeth are covered with sordes, and yet from the condition of sensorial oppression, great thirst does not appear to prevail. As the disease advances, the skin becomes of a darker colour than in synochus, covered sometimes with petechiæ, or affected by erysipelas, particularly on the scalp and shoulders; excoriations on the back and hips degenerate into foul ulcers, and the glands in various parts of the body inflame and suppurate. Typhus will always terminate quicker than synochus; when the attack is fatal, it is usually on the tenth or fifteenth day, although it may continue beyond the twenty-first, but in general, where it extends to the latter period, the disease has not been so acute, and is so much lessened, as to encourage hopes of a recovery. When the cerebral affection is more acute than we have described, of course every symptom is aggravated, the course of the disease shorter, and the result almost invariably fatal.

Thoracic affection is a common and prominent accompaniment to typhus, denoted more by a sense of stricture and dyspnoea than of pain; the cough attended with a mucous rattle, and the respiration short and hurried. The skin is in general cool, but its peculiarly dark and livid colour may be regarded as one of the strongest evidences of intense thoracic affection; the tongue is dry, and in the last stages black and

cracked; the pulse always weak and rapid, and the cerebral soon combining with the thoracic affection, which it must necessarily do, from the disturbance of the circulation in the lungs, interferes with the due supply of arterial blood to the brain, when a state nearly approaching to asphyxia is induced, under which the patient expires.

When abdominal affection is joined with typhus, pain is not so frequent a symptom as in synochus, nor is the tenderness on pressure so great; but the abdomen is swollen, hard, and tympanitic, while the stools are more early and constantly passed involuntarily; hæmorrhage from the bowels is also common. The tongue presents the same appearances as in the cerebral affection, and many of the other symptoms resemble those produced from that cause.

Typhus (b) gravior, or the putrid typhus of ancient authors, by whom it has also been denominated the Jail, Camp, Hospital, and Spotted Fever, may be hardly said to exist according to their descriptions; so late as the days of Cullen and Huxham, a typhus of extraordinary malignity has been described, of which it would be difficult, if not impossible, to find an example at the present period. The fever, to which we are accustomed to apply the present term, may hardly yield in fatality to any former disease; although some of the symptoms may not appear so terrific, still where an attack is made, not upon one organ in particular, as in the milder kind of typhus, but upon the brain, the lungs, and the abdomen, at once, and in the most intense degree, we can readily imagine that the symptoms are sufficiently formidable to render their conquest always difficult, and frequently impossible. Typhus gravior may appear under increased arterial action, or under circumstances when it is oppressed. In the first, the patient is insensible, but delirium, and sometimes so violent as to require restraint, prevails, the respiration is rapid and panting, the abdomen tender, the stools frequent and involuntary, the tongue dry and black, the pulse quick yet weak, and the skin pungently hot. In the second, the patient is also insensible, with a cold and dusky skin, a swollen and livid countenance, the respiration heavy and labouring, and the pulse so faint that it can scarcely be felt, or if distinguished, so rapid that it is counted with difficulty; here the sufferer labours under congestion, and is as completely paralyzed as in apoplexy. We are fortunate enough seldom to witness these dreadful invasions of disease, and when they do occur, they are generally the result of exposure to some foul miasm, or owing to a peculiar condition of the system by which the injurious influence of noxious agents is readily admitted.

Treatment. Few subjects have given rise to more dispute than the treatment of typhus in all its stages, and under every attack, whether mild or acute; some physicians, in considering it as a disease of debi-

lity, have regarded the lancet merely as the instrument of destruction, and have in preference directed the use of stimulants, in an attempt to recal the fleeting energies of existence; whilst others, viewing typhus more as a congestive fever, have been anxious to relieve the system from its load of oppression by bleeding, in a persuasion, that the intensity of action, of which the apparent debility is but an effect, will be immediately visible. The reasonings of both these authorities may be admitted to a certain extent; we sometimes witness a case where an absolute depression without an oppressed respiration, a livid countenance, and a rapid small pulse, may prohibit venesection, and demand the administration of stimulants, and again, other instances occur, where the energy of the system is suspended, and must be rapidly destroyed, unless the state of congestion be removed: that this energy is only suspended, is apparent from the circumstance, that on the abstraction of a few ounces of blood, the state of oppression frequently ceases at once, and fever of a positive inflammatory character appears, requiring perhaps several bleedings to subdue. In no disease is the exercise of a sound judgment more indispensable than in typhus; there are undoubtedly some conditions of a system labouring under it, where depletion is necessary, and others where stimulants are alone of use, and a reference to the symptoms already described will point out where each plan of treatment is requisite. The employment of purgatives, diaphoretics, and other medicines must be resorted to, upon the same principles that have dictated their use in synochus, always remembering that as we have in cases of typhus, a more powerful enemy to contend with, so our reliance on palliatives must be less, and our adoption of bolder means of relief prompt and decided. Some practitioners are partial to the exhibition of an emetic, in the early stage of typhus, and especially during the chills, and it is asserted, that the attack is sometimes cut short by the sudden shock so given to the system; others as warmly recommend cold affusion as soon as the hot fit is formed; both plans are perhaps entitled to attention. Dr. Burne observes that the blood is greatly changed in its properties during typhus, becoming blacker than usual, coagulating less firmly, rarely showing the buffy coat, and in being found in the dead body, still black and fluid, and Dr. Clanny concludes from such circumstances, that the watery portion of the blood increasing, the animal principles and salts are diminished. Dr. Armstrong remarks that if blood be drawn from the temporal artery during this fever, it is of a venous colour, and he accounts for the alteration by supposing that it depends "upon a specific bronchitis, the mucous membrane of the bronchial tubes being loaded with dark blood, and besmeared with a copious and tenacious secretion." It is singular to trace the analogy between the observations of these physicians, and

those of Dr. Stevens, made at a later period, when investigating the causes of yellow fever, and alluded to in this work, when treating of that disease; and it is not too much to suppose that if the theory of the latter gentleman be correct, the remedy he proposes, so simple in its nature, and in his practice so efficacious, may be employed with advantage in the treatment of typhus.

V. ERUPTIVE FEVERS, or *Exanthemata*, are those diseases which are attended with an eruption, undergoing, like the accompanying fever, a regular series of changes, arising from a specific contagion, and usually occurring but once in life. The exanthemata, which are the truest in character, being marked by the presence of continued fever running a defined course, are *scarlet fever*, the *measles*, *small pox*, *cow pox*, and *chicken pox*, and these may receive our first attention, before we treat of the other and more irregular febrile eruptions.

1. SCARLET FEVER, or *Scarlatina*, as it is termed, when occurring in a modified form, is a disease of comparatively modern date; it is probably of African origin, and first appeared in Spain in the commencement of the seventeenth century, and after gradually spreading over Europe, made its appearance in North America in 1735, and slowly diffused itself over that continent. It presents two varieties;—*simple scarlet fever*, or *scarlatina*, and *malignant scarlet fever*: either form may proceed from a specific miasm or a peculiar temperament of the atmosphere, or from the miasm generated in the body of a sick individual, and of the latter we alone possess any proofs; we occasionally witness an apparently exciting cause, in a violent cold, or a surfeit, but as these continually occur without producing scarlet fever, we cannot regard them but as accidental causes. It is impossible to doubt the contagious properties of this disease, although it may more frequently prevail as an epidemic; children are in all cases more liable to attack than adults, whether it spread over a large extent of country epidemically, or merely occur as a sporadic disorder; in common with other exanthems, it renders the system less susceptible to a second attack, though not to an equal degree with the measles and small pox. Each attack varies, of course, with the degree of violence of the febrile and local symptoms; in severe cases death ensues at the end of the third or fourth day; in others it is deferred until the second or third week, but as a general rule, it may be said that the danger is not imminent, if the ninth day be passed over. The recession of the eruption is always a most unfavourable symptom.

Simple scarlet fever is more nearly allied to pure inflammatory affection, than any of the varieties of synochus or typhus; the pulse is stronger and quicker, ranging from a hundred to a hundred and forty in the minute: the heat of the surface is generally great and pungent, and the capillary vessels of the external skin, as proved by the bright co-

bour of the eruption, are filled with blood ; in some instances the whole surface of the body is thus affected, and the inflammation constantly terminates in the death of the cuticle, when it desquamates and falls off. The capillaries of the internal skin are no less affected, as evinced by the vividness of the mucous membrane covering the mouth, tongue, fauces, and throat, and probably this redness extends still farther to the bronchi, and the intestinal canal, although we have no means of tracing it, beyond the disordered function which succeeds. The attack usually commences with a sense of lassitude and uneasiness, to which a burning heat, nausea, and vomiting succeed, with a distressing pain in the head ; the eruption usually appears on the second day, first about the neck and face in numerous small spots, which in twenty-four hours spread over the whole surface ; on the limbs, and especially the fingers, a continuous eruption is observed, whilst on the trunk the efflorescence is distributed in irregular patches : there is also remarked occasionally an appearance of papillæ, and minute vesicles on the breast, as in miliary fever.

Some portions of the internal skin covering particular organs are apt to pass from the state of inflammation into that of ulceration, and this is usually the case in the throat and larynx ; the inflammation will also extend to the stomach, producing an extreme tenderness of the epigastrium, and from the larynx into the bronchi, occasioning the frequent symptoms of thoracic affection, as pain in the chest, cough, difficult and hurried respiration. Such is the form in which the simple scarlet fever commences and continues its attack, resembling in many respects the synochal fever, and hence named by some authors *scarlatina synochodes*, as distinctive of the severer variety, which has received the term of *scarlatina typhodes*. The former is rarely fatal in the countries of Europe, when early and properly treated ; in some cases, indeed, the accompanying febrile symptoms are of so slight a nature, as to occasion but little inconvenience ; when the eruption that marks the character of the disease is easily subdued. In this country, however, it prevails in a higher degree of violence, (but without approaching the malignant fever so closely as to justify its inclusion under that variety,) and is consequently more fatal in its termination. The weekly record of deaths in New-York alone, furnishes sufficient testimony of the character of the prevailing scarlet fever, and by far the greater number of its victims are children under twelve years of age.

The malignant scarlet fever presents a strong contrast to the first form of the disease, and is particularly distinguished by the morbid virus being directed more to the fauces, than to the surface. It may arise from the same causes as the simple scarlatina, and in some instances it succeeds to it, either from careless and improper treatment, or from a

predisposition to the disease on the part of the sufferer. When it occurs as a primary affection, it is ushered in by violent rigors, attended with giddiness, acute headache, restlessness, faintness, a sense of heat and soreness in the throat, and usually vomiting and purging. The typhoid symptoms, from which the term typhodes has been applied, soon set in, resembling those described under a former head; one remarkable circumstance is sometimes strikingly characteristic of this fever, in the tumefaction of the fingers, which are tinged with an erysipelatous hue. The efflorescence occurs at uncertain periods, and is capricious both in its appearance and departure, and from its inconsistency, it can hardly be relied upon as a pathognomonic sign. The peculiar and distinguishing mark of this disease, consists in its invariable tendency to attack the throat and fauces; however severe the attack in these regions may be in the milder form of scarlet fever, it cannot be compared with that prevailing in the malignant variety; "dark sloughs surrounded by a livid base, and occasioning intolerable fœtor, accumulate in the throat, the parotid glands swell and become painful to the touch, the mouth is encrusted with a black or brown fur, and a viscid phlegm clogs up the fauces to such a degree as sometimes to threaten suffocation. The inside of the nostrils appears of a deep red or livid colour, from which an irritating sanies flows, excoriating the angles of the mouth and cheeks; these symptoms are often accompanied by severe purging, with hæmorrhage from the nose, mouth, and bowels; the pulse is small, feeble, and irregular, and often from the very commencement, there is delirium and coma." Dr. Gregory, in whose pages the above faithful portrait of the malignant and typhoid variety is drawn, concludes his remarks by the just observation, that even in those rare instances where an apparent recovery ensues, the extreme weakness that follows as a consequence to so desperate an attack, and the diarrhœa or hectic which often supervenes, are almost as much to be dreaded as the previous fever.

The severe affection of the throat in this most virulent form of scarlatina, bears so strong a resemblance to cynanche maligna, that the latter affection may almost be pronounced as a symptom of the former. Dr. Cullen, indeed, struck with the resemblance, but differing in his conclusions with more modern authorities, regarded the malignant scarlet fever but as a variety of cynanche; at present, on the contrary, we look upon the efflorescence as the peculiar and pathognomonic symptom of the disease, and consider the attack on the throat, although the most fatal, yet merely as a subsidiary symptom.

Treatment. In the simplest form of the disease, an emetic administered at the commencement of the attack will assist the means of cure

set up by nature, in determining the specific poison to the skin; beyond this, nothing but gentle laxatives will be required in subduing the disorder. When the febrile symptoms are more severe, and especially when the heat is greatly increased, the cold affusion may be advantageously employed, continuing this remedy while the skin is *hot and dry*; its effects are recognized in an abatement of the thirst, headache, and languor, a diminution of the frequency of the pulse, and by a disposition to sleep which is uninterrupted by starting. The practice of venesection in scarlet fever, has been opposed by numerous authorities, who regard it as a disease of debility, and sanctioned by others who consider the fever as congestive. By referring to the train of symptoms, it would certainly appear, that in the earlier stages there is a greater tendency to inflammation than in ordinary fever, and greater vascular action, with less nervous and sensorial depression; this certainly justifies us in carrying bleeding to a greater extent than in ordinary fever, and the experience of physicians in the large fever-hospitals of London and Dublin establishes the safety and efficacy of the practice. Acting in conformity with these principles we may attempt a decided impression upon the system by the abstraction of from ℥xvi. to ℥xxvi. of blood, applying afterwards ten or twelve leeches to the throat, on the first symptoms of inflammation in that organ. Acidulated drinks, the common senna mixture as an aperient, and the mixture of the acetate of ammonia in ounce doses, every sixth hour, as a diaphoretic, may likewise be employed.

Where the true malignant scarlatina sets in, it is yet a matter of consideration how far it may be considered as a disease of congestion or debility; as in the worst forms of typhoid fever, to which our readers are referred, debility may occur after the congestive stage, but the difficulty in both diseases consists in drawing the distinction between the state of oppression demanding relief, and the state of weakness requiring support; in one instance, the lancet may be called for, and in another, the administration of tonics and wine, under the same cautions to which their use would be subjected in typhus. The cold affusion is as serviceable in this, as in the former variety; sponging is insufficient as a refrigerant, and fails in producing the exhilarating and desired effect; the change after one affusion is occasionally instantaneous, the skin softer and moister, as well as cooler.

In all cases of scarlet fever, where the throat is affected, antiseptic gargles will be found serviceable; those formed with oxymel and port wine, chloruret of soda and tincture of myrrh or capsicum, &c., may be employed at the discretion of the physician, according to the prevailing symptoms. Blisters applied to the throat after leeching, are frequently of good effect.

The extract of belladonna has been extolled by Dr. Dusterburgh of Gutersloh, not only as a powerful remedy in diminishing the irritability of scarlet fever, but as a prophylactic in rendering the constitution less disposed to its attack; he administered twenty drops of a solution of three grains of the extract, daily, in three drachms of canella water, and he asserts that none of the children who continued this medicine a week were attacked with the disease, although continually exposed to its contagion. These observations are entitled to some attention, although standing in need of farther confirmation.

Scarlet fever has been occasionally confounded with the measles; it is distinguished from this latter disease, by the eruption usually appearing on the second, whilst that of the measles is deferred until the fourth day; by the colour of the eruption itself, a vivid redness, whilst that of the measles is of a dingy red hue, and by the absence of catarrhal symptoms, which are nearly constant in measles.

One of the most melancholy consequences of scarlet fever is the dropsy, which frequently succeeds to the mildest as well as the most severe cases; it will be farther alluded to, when we treat of the subject Hydrops.

II. MEASLES. (*Rubeola*.) This disease first appeared in Europe about the same time as the small-pox, with which, as well as the scarlet fever, it has frequently been confounded, nor was it until at a comparatively modern period, that its distinctive characters were established. Its source is a specific miasm, generated from some peculiar condition of the atmosphere; like scarlatina it is frequently epidemic, and also spreads rapidly by contagion, the latent period varying from eight to ten, or even fourteen days. In the majority of cases, children are attacked by it, although no age is exempt, and it rarely occurs but once in life.

This disease has been described under several varieties, which may however be all included under the two heads of *benign* or *mild*, and *malignant* measles.

The first, or the *mild form of the disease*, termed by nosologists *Rubeola vulgaris*, usually appears as an epidemic, and generally prevails during the first six months of the year, although a few cases may be observed at any period. The accompanying fever is catarrhal, hence the first symptoms are hoarseness, a dry cough, with frequent and hurried respiration; the eyelids are tumefied and the vessels of the conjunctiva turgid and inflamed, the cheeks are wet with acrid tears, and a nearly constant sneezing is excited; a sense of weariness and drowsiness is complained of, the head is affected with a dull pain, and the stomach with nausea. On the fourth day the eruption appears, in a slightly prominent rash, at first over the face and neck, and gradually

spreading over the whole body. The rash is made up of a number of distinct circular and acuminate spots which afterwards, unite, forming irregular patches; on the sixth or seventh day the dingy redness of the eruption becomes of a brown colour, which disappears about the eighth or ninth with a mealy desquamation of the cuticle, leaving a slight discoloration. The earlier the efflorescence breaks out, the milder the accompanying fever, which continues throughout the eruption; the vomiting alone subsides upon its appearance, whilst the headache and difficulty of breathing increase, and all the catarrhal symptoms remain without abatement until its termination. In this the ordinary course of measles, little danger need be apprehended; the disease is a catarrhal fever with a specific eruption, which is always dependant for its severity or mildness upon the degree of febrile attack.

The second form of the disease or the malignant measles, likewise called *Rubeola nigra* or the black measles, presents no particular variety of symptoms, unless it be combined with a typhous affection; its usual characteristics are, an intermixture of dark or petechial spots from effused blood, mixed with the common rash, and remaining sometimes for a fortnight after the regular eruption has ceased; a quicker pulse, and more oppressive languor and debility.

It is necessary to notice one peculiar attack of this disease which has been termed *imperfect*, and in which the rash appears and runs through its regular course with so slight a fever or catarrhal affection, as to resemble a simple cutaneous eruption. Dr. Willan named the imperfect variety the *Rubeola sine catarrho*, and it has generally been considered as affording little or no protection against a second attack.

Dr. Home of Edinburgh proposed inoculation for the measles, for the purpose of producing a milder disease, and for that purpose drew blood from a turgid cutaneous vein where the eruption was most confluent, and impregnating a dossil of cotton with it, applied the cotton to a wound in the arm. This plan is, however, scarcely worth imitation, for in the first place, the attempt at inoculation fails more frequently than it succeeds, nor does it operate with any degree of certainty in introducing a modified disease.

The worst consequences of measles are the pneumonic symptoms that succeed the cough, so constantly present during the fever, and which may terminate in phthisis. A minor evil will sometimes follow the inflammation of the eyes, in a severe attack of ophthalmia, but upon the whole, we may assert that these sequelæ seldom occur, except where the treatment has been improper in the earlier stages, when the symptoms have not been carefully watched and relieved, or where there is a predisposition to consumption or scrophula.

It only remains to add, that the old opinion, of the non-contagious

property of measles until the eruption appears, is probably incorrect, as it is opposed to the experience of many eminent physicians who assert to the contrary.

Treatment. The mild variety from the nature of the accompanying catarrhal fever, demands those remedies prescribed in catarrh, and frequently the simplest measures will promote a cure; an emetic may be administered at the first appearance of the disease, succeeded by cooling aperients, diluents, and an occasional diaphoretic draught. Blood-letting is not required unless in the case of pneumonic inflammation, when it may be practised, applying a blister to the chest immediately afterwards, and adopting a strict antiphlogistic regimen. Exposure to cold, so serviceable in the small pox, would be most injurious in the measles, and probably induce an immediate attack of the lungs; the room of the patient may be kept cool, but well protected against draughts, and during the whole time the fever prevails, the food should be warm and in a liquid form. When the cough is troublesome, breathing the steam of warm water over a large basin will afford relief, but should it still continue obstinate, with pain in the chest and greater oppression in breathing, the lancet must be employed without delay. Opium is not calculated for administration in this disorder. it increases the heat and uneasiness, and rarely acts as an anodyne. The most favourable circumstance in the fever of measles, is a supervening diarrhœa, which must be cautiously interfered with, as it proves the most favourable crisis of the disorder. In the malignant form, the quinine mixture with sulphuric acid, may be added to any of the former medicines that may be indicated in the progress of the fever; when typhoid symptoms succeed, the same treatment will be necessary as directed for typhus fever.

SMALL POX. (*Variola*.)—This fatal disease existed in China and Hindoostan for an incalculable period before its introduction into Europe; from Asia it extended into Africa in the sixth century, after ravaging Arabia, and was communicated to the eastern and northern shores of that continent, from whence, in the eighth century, it was conveyed by the Saracens, upon their conquest of Spain, Sicily and the Levant, into Europe. It reached England about the close of the ninth century, and was carried to America in the sixteenth by some of the successors of Columbus. The practice of inoculation that exerts so benign an influence over the disorder, likewise appears to have commenced in China, and to have travelled from thence into India, Asia Minor, and finally into Europe, but it was not until 1721 that Lady Mary Wortley Montagu, the ambassadress to the Porte, was enabled, by the force of her own example in submitting her children to the process, to create the slightest confidence in its favour; and even after this circumstance, (aided as it

was by an experiment in the same year, on six condemned criminals who were inoculated, passed through the disease, and recovered,) the public mind remained for a considerable period in a state of doubt, as to the real efficacy of the practice. It was at length clearly established, to the minds both of the sceptical and ignorant, that after inoculation, the eruption was more distinct and scattered than when the disease was taken naturally, and that the accompanying fever was less severe. The small pox is propagated either by contagion, or inoculation, the latent period of the former being from ten to fourteen days, at the end of which time, its effects upon the system are visible. The distinguishing pathognomonic character of the genuine disease consists in the eruptions containing pus. There are two distinct varieties, *the distinct small pox*, (*Variola discreta*,) and the *confluent*, (*V. confluens*,) besides some minor species that will be alluded to hereafter.

1. *The distinct small pox*, when derived from contagion, is marked at its commencement with the common symptoms of a febrile cold fit; the seizure is sudden, accompanied with nausea and vomiting, slight soreness of the throat, pain in the epigastrium, (particularly on pressure,) and down the back and loins. On the fourth day the eruption appears at first on the face, neck, and breast, and gradually extends to the other parts of the body; the spots may be described as elevated papulæ, with a central depression at the summit of each, and in this stage they contain a small quantity of thin transparent lymph; the spaces between them are marked with areolæ, which, when the vesicles are numerous, occasion great inflammation, giving the skin a dark red colour, and as the disease proceeds, induces swelling of the face; about the sixth day the vesicles lose their central depression, and suppuration having taken place, assume a spheroidal form, and become pustules containing a thick and opaque matter of a yellowish hue; on the eighth day the suppurative process is complete, and on the tenth or eleventh, they either burst or commence drying away; the vesicles scale off by degrees in the form of small scabs, and wholly disappear about the fourteen or fifteenth day, with the exception of those on the extremities, which, as they are the last to form, commonly continue a short time longer. The accompanying fever is of the inflammatory type, and appears to correspond with the violence of the eruptive symptoms, for, where the pimples are few in number, and widely scattered, there is but little suffering, and on the contrary, where the eruption is numerous, although perfectly distinct, the soreness, swelling, and heat are very distressing. The fever has an exacerbation as each of the four stages, the incursive, the eruptive, the maturing, and the declining or scabbing, are displayed, and when the patient is an infant, these periods are frequently marked by an attack of convulsions. Such is the ordinary course of the mild form of this disease,

but we occasionally witness some variations in the mode as well as the severity of the attack ; for instance, the eruption upon the face will run a more rapid course, while that upon the feet and legs is proportionally slower ; the contents of the pustules will also vary in appearance and consistence, from whence have arisen the distinctive term of some authors, crystallized horn, water poeks, &c.

When the distinct small pox is propagated by inoculation, the puncture, though scarcely visible, does not so completely disappear as in that with vaccine fluid ; about the fourth day a minute papula is observed, with an orange coloured areola around it, which gradually increasing, a slight itching is felt in its situation and sometimes a slight blush of inflammation will be perceived ; on the sixth day pain and a sense of weight are experienced in the axilla, proving that the lymphatics of the arm are affected, and that the virus is conveyed into the system, and on the seventh, after shiverings, headache, and pain in the back, the eruption follows ; although in this, the mildest form of the disease, frequently the only eruption is the pustule on the puncture or a few immediately surrounding it. When the symptoms are unfavorable, the local efflorescence is of a purplish, instead of a rosy inflammation, with a narrow and deep red circle surrounding the puncture. In ordinary cases, however, the symptoms occur in the same order, although with far less severity, as in the attack following contagion.

Treatment. The practice of the ancient physicians cannot be more strongly contrasted with that of the moderns, than in the treatment of this disease : the former, under the impression that their duty consisted in driving the eruption out, administered cordials and stimulants ; at the same time confining the patient to a heated room ; the latter, on the contrary, acting upon the principle that the eruption would run a certain course, and that their endeavours should be directed to the moderation of the accompanying fever, have employed cold water, acid drinks, purgatives, and have insisted upon the free admission of fresh air. Apart from all theories upon the subject, the success of one practice, and the miserable failure of the other, are sufficient both for a lesson and an example. From a variety of experiments, it appears that calomel exerts a more powerful and favourable influence in this disease, than any other purgative, although to increase its action, the powder of jalap may be combined with it. Cold water may be permitted in large draughts, the patient should be removed from his bed and urged to use gentle exercise either abroad or in a large and airy room. Lemonade when preferred may be given as the usual drink, or what is perhaps still better, a solution of cream of tartar sweetened, as tending to keep the bowels open ; the purgatives should be administered at each exacerbating stage, and where, as in children, convulsions ensue, a few drops

of laudanum will best remove the spasmodic irritation. It has been said that the mineral acids, when diluted, have a peculiar property in diminishing the extent of the eruption; they are certainly both grateful and refrigerant in fever, but in small pox they seem to exert an uncommon power in restraining the process of assimilation. It is perhaps indifferent which of the acids are preferred, and the sulphuric acid will answer every purpose required or expected in their exhibition.

2. *The confluent small pox* is distinguished at first by a general efflorescence over the whole surface, which is followed by a great number of pimples, showing themselves about the third day; these soon run into each other; especially about the head and neck, each vesicle containing a yellowish serum instead of pus, as suppuration seldom occurs regularly in this variety. The fever is violent, exhibiting a synoehus type, which is apt to run into typhus, and instead of subsiding upon the appearance of the eruption, as in the distinct kind, it generally increases. The head is violently oppressed, the face pale and swollen; the eyes inflamed, and delirium or coma is a frequent sequel. Where the pustules are not confluent, as on the extremities, no areola surrounds the pustules, which on breaking, form large blackish or brown scabs yielding an intolerable fœtor. At this period an exacerbation is undergone, and the pain and other symptoms are materially increased, and from the irregularity of the suppurative process, an ulceration commences beneath the scabs, occasioning pits and seams. In other cases the eyes are principally affected by acute inflammation, too commonly ending in a partial or total loss of sight, or boils, abscesses, and tedious sores may appear on different parts of the body. Peculiar to the confluent small pox is the salivation of adults, and the distressing diarrhœa of children; the former commences with, or within a day or two of the eruption, the saliva being at first thin, but towards the eleventh day, which is the critical period of the disease, becoming viscid, and discharged with great difficulty:—the latter continues throughout the whole course of the fever, when once it sets in. When the case terminates favourably, the swelling of the face will begin to abate about the eleventh day, and that of the extremities commence; but should the constitution be unable to resist the disease, the cuticle suddenly becomes flattened, the features sink, the pustules are depressed, whilst the coma increases, petechiæ appear in various parts, hæmorrhages from the nose, stomach, and bowels succeed, the pulse becomes weak and tremulous, and the whole train of typhoid symptoms setting in, the patient expires usually about the eleventh or sometimes not until the sixteenth day.

Treatment. The same plan may be adopted in the early state of this variety as recommended in the distinct small pox; purgatives, diluents,

a free admission of cool air, and the cold affusion, which last may be repeated at a more advanced stage, the skin continuing hot and dry. In plethoric children or adults, the lancet may be employed, and to such an extent as the symptoms, particularly the coma, indicating an oppression of the cerebral functions, may appear to demand. When every attempt to reduce the violence of the fever proves fruitless, and the ensuing debility is alarming, it may be necessary to afford some support, for which purpose, camphor either in solution or pills, the carbonate of ammonia, or the acidulated decoction of cinchona may be administered. In extreme cases, wine must be added, and blisters applied to the legs and feet; where diarrhœa supervenes, opium may be required, although its use must be refrained from in the earlier stages.

The most mischievous consequences of small pox arise from the general disturbance and debility occasioned in the system, whence dropsy, marasmus, and hectic, are by no means its uncommon results; from the same causes it succeeds in awaking some dormant disease, such as scrophula or phthisis, which otherwise might have remained quiet through life, but now succeeding as its fearful sequel.

With a view of saving the face as much as possible from the ulceration that may occasion deep pits and scars, some practitioners are in the habit of opening the pustules and discharging their contents, applying afterwards a small piece of fine lint, smeared with a little mild ointment; this practice may not only effect the desired object, but also prevent much of the secondary fever, that may probably be ascribed to the absorbed virus, thrown back into the system from the surface.

It is unnecessary to notice the minor varieties of small pox under the names of *crystallized* or *horn pox*, farther than to observe, that its only irregularity consists in the variolous fluid being thrown upon the surface as lymph instead of pus, and as only an imperfect suppuration is set up, the pimples become ichorous or horny and semi-transparent; this is particularly frequent in persons with a coarse dark skin, and is very general amongst negroes.

Cow Pox. (*Vaccinia*.)—Previous to the year 1798, an idea prevailed in the south of England, in the farming districts, and particularly in the county of Dorset, that a cutaneous eruption appearing on the teats and udders of cows was communicable to the hands of the milkers, and that persons who had been thus affected, were secured from an invasion of the small pox. Whether this eruption be a primary disease in cows, admits of some doubt, and late investigations almost prove that it is merely secondary, originating in a disease of the hoof of the horse, vulgarly called “the grease,” the discharge from which is capable, by inoculation, of producing an eruption similar in all its characters to that propagated directly from the cow. To Dr. Jenner of

Berkeley in Gloucestershire, belongs the distinguished honour of bringing this discovery into perfection; this physician devoted the energies of a powerful mind to the subject, and after numerous experiments, and a minuteness of investigation seldom surpassed, announced to the public in 1798 his perfect conviction of the protecting power of the vaccine virus, and recommended its general adoption in the place of varioloid inoculation. The theory and practice of the Doctor were destined to encounter all the ignorance and prejudice of the medical world of the eighteenth century, but it has at length triumphed over all opposition, and is spread to every habitable spot of the globe, where the track of civilization can be recognized.

Inestimable as the discovery of inoculation for the small pox may have been, it must nevertheless be admitted, that the wider diffusion of contagion by its indiscriminate employment, and the constant exposure of sufferers, led to a greater increase of the disease, especially amongst a numerous class, whose prejudices interfered with their own and children's safety in refusing inoculation, and who were thus trebly exposed to the risk of infection; it might therefore be almost regarded rather as an evil than as a good, in keeping up without intermission, a disease which, however mild in the inoculated patient, would appear under the worst forms when communicated to another by contagion. How incalculably great then were the advantages afforded by the introduction of vaccination, a practice which, if persevered in to the fullest extent, might relieve society of that scourge, which has claimed more victims than the plague, and unlike that disease, has raged in countries of every latitude, and at all seasons.

The natural cow pox, as immediately derived from the teats of the cow, is characterized by the appearance of an uncertain number of vesicles about the joints and extremities of the fingers, of a circular figure, and of a blueish tint, containing a fluid which is at first limpid, and afterwards opaque and purulent. The fever commences with the usual symptoms of lassitude, pain in the head, limbs, and loins, vomiting and partial rigours, with a painful enlargement of the glands of the axilla, and continues until about the seventh day. In three or four days the vesicles burst, and become troublesome sores, healing very slowly, and sometimes bearing a phagedenic appearance. The discharged fluid is highly contagious, inoculating every abraded part to which it may, by accident, be applied. In the affected cow the vesicles are larger than those observed in mankind, surrounded by a circular erythema; the animal sickens, refuses its food for a day or two, and yields but little milk. The ulcers are foul, and occasionally very obstinate in healing.

The inoculated cow pox is characterized by the presence of a small vesicle, confined to the puncture, of a blueish-brown colour in the middle, containing a clear and lymphoid fluid, remaining colourless throughout, and concreting into a hard and dark brown scab after the twelfth day.

In vaccinating, care should be taken to obtain the virus before the ninth day; the slightest puncture is sufficient, and indeed preferable to one drawing much blood, by which the fluid may either be diluted or washed off. The puncture almost disappears until the third day, when a minute inflamed spot becomes visible, which, increasing, gradually hardens, and produces a small circular tumour, slightly elevated above the skin; about the sixth day the centre of this tumour displays a discoloured speck, which, augmenting in size, becomes a manifest vesicle containing a clear fluid; this continues to fill until the tenth day, when it may be said to display the peculiar appearances, distinguishing it from the variolous pustule; the shape is circular, or a little oval, with a well defined margin, the centre being less elevated than the circumference, with a depression on the summits; these characteristics, and the clearness of the contained fluid, are decisive proofs of the genuine quality of the virus, whilst on the other hand, a cloudy and dirty coloured fluid, in a pustule having rough or jagged edges, is indicative either of a spurious or imperfect virus. About the eighth day, when the pustule is completely formed, although not fully distended, and a blush of inflammation extends around it for about an inch in diameter, a slight constitutional disturbance is apparent; the axilla is painful, and the glands may be somewhat enlarged, the head aches, and shivering, lassitude, and a loss of appetite are complained of, the pulse being at the same time increased in frequency and strength. In infants we merely observe a degree of restlessness and a disinclination for food; and in many instances, even these trifling symptoms are not perceptible. However the system may be influenced by the disease, all disturbance spontaneously subsides in two or three days, without leaving any unpleasant consequences. Mr. Byrce, in his "Observations on the inoculation of cow pox," proposes, as a test of the perfection of the vaccinal virus, beyond the pathognomonic signs before described, "a second inoculation on the fifth or sixth day after the first, and he asserts that if the disease be proceeding regularly in all respects, the affection produced by the second inoculation will be accelerated in its progress, so as to arrive at maturity, and decline nearly at the same time as the affection arising from the first."

Treatment. A little aperient medicine, and, where the inflammation around the pustule is severe, a weak saturnine lotion is all that is required.

Sir Gilbert Blane in his evidence before a committee of the house of commons, described a variety of vaccinia under the term of *Degenerate Cow Pox*, produced by inoculation, where the vesicle appeared at uncertain times, contained a straw-coloured and purulent fluid, without any areola, and which healed prematurely; the cause of this degeneracy has not been clearly pointed out, but since it has been well ascertained that inoculation from this source is no protection against the small pox, and its peculiarities are so well marked as to prevent the possibility of mistaking it for the genuine disorder, we are bound to repeat the vaccination with a virus drawn from a pustule bearing the genuine and specific marks.

The same remarks may apply to another variety, the *Spurious Cow Pox*, existing in cows, and bearing a strong resemblance to, and often confounded with, the true disease; it is distinguished by the irregularity of the vesicle, its contents being purulent from the first, without any blue tint, and with little or no central depression. In concluding this article, we cannot too strongly recommend to the medical world the necessity of a close examination of the pustule in cow pox; it affords an unequivocal testimony of the existence of the real disease, and by the rules we have given for discriminating, under the different varieties, between the appearances produced by a true and an imperfect virus, all error upon the subject may be avoided. The prejudices of the day have been fostered too frequently by the ignorance of practitioners, who have employed a degenerate or spurious virus, totally incapable of protecting the system from small pox, the appearance of which has been hailed as subversive of the principle of vaccination, and it is hardly too much to assert, that could we be put in possession of all the facts, in the majority of instances, relative to a case of small pox occurring after the introduction of the vaccine virus, we should discover some circumstances that might warrant us in presuming that the source from whence it was derived was impure or inefficient. In those rare cases where physicians of eminent character have reported attacks of small pox after cow pox, the latter disease having run its regular course, the variola has always assumed a character of extraordinary mildness, both in the extent of eruption and the degree of fever, and thus, instead of proving an argument against vaccination, it rather supports the practice; as the system, although not perfectly protected in these singular instances, is yet so guarded, as to repel the violence of an attack that otherwise might have proved the conqueror.

CHICKEN POX. (*Varicella*.) This eruptive fever has met with as early and almost with as much notice as the small pox, with which it has been occasionally confounded. An opinion was once prevalent that it

was communicable by inoculation, but it has since been satisfactorily proved that it cannot be thus propagated. In all instances it arises from a specific contagion, and affects the system but once during life ; whenever a supposed case of its occurring after inoculation has occurred, a mistake has been committed in the denomination of the disease, or rather in the diagnosis between two diseases, and virus has been taken from a variolous pustule, and small-pox introduced into the constitution, instead of the chicken-pox. This disease has been described under various names, such as *the chicken*, *the swine*, and *the water pocks*, which have been distinguished by the shape of the vesicles ; those of the chicken-pox being described as lentil-shaped, or irregularly circular, flattened at the top ; of the swine-pox, acuminate ; and of the water-pox, as clustering upon a common but broader base, redder at the first, and later in appearance. The accompanying fever is nearly the same in all, except in the last variety, where it is rather more severe, and continues for a short period after the termination of the eruption. We sometimes witness a singular mixture of two of these varieties, when the greater size of the pustules, the increase of the local inflammation, and the general fever, have led to the disease being mistaken for small-pox, which formerly induced the mischievous error of putting the sufferer off his guard against that disease, and rendering him neglectful of the protection he could have derived from vaccination.

The eruptive fever of varicella is in general very slight, and is soon followed by the eruption, which commonly appears on the back, and gradually extends to the breast, and subsequently to the face, scalp, and extremities ; the vesicles are sufficiently distinguished from those of small-pox, by being perfectly transparent, covered with a very thin cuticle, and having no central depression ; the contained fluid is a clear lymph, and if this be discharged, the sides of the vesicle fall to the level of the surrounding integuments ; as early as the third or fourth day of the eruption, this fluid concretes into crusts, which are thrown off without indenting the cutis. When several of the vesicles are broken and afterwards irritated, as frequently occurs in children who are distressed by their incessant itching, they are frequently converted into pustules with a circle of surrounding inflammation. The vesicles are rarely confluent, and, in general, may be estimated at from twenty to two hundred in number. The feverish symptoms are in general so slight as scarcely to demand medical treatment, but when there is much headache, shivering, sickness, and pain in the limbs, an active purge may be administered, succeeded by cool drinks, which, with good ventilation and a light diet, will complete the cure.

We have now described those eruptive fevers, that are the truest in

other eruptive diseases, included under the same head, the principal of which are *Urticaria*, or the *Nettle-Rash*, *Herpes*, (both of which are treated of under the head of cutaneous diseases,) and *Miliaria*.

This last fever derives its name from the appearance of the vesicles that are scattered over the body, somewhat resembling the millet seed in size and appearance; they are at first red, being seen through an inflamed base, and afterwards opaque and milky, probably from an absorption of the thinner portion of their contents. It has always been considered as an idiopathic disorder, called into action, according to some authors by suppressed perspiration, whilst others consider excessive perspiration as the immediate cause; a third opinion likewise prevails, that it appears as a symptom of other diseases, when the skin is peculiarly irritable. The accompanying fever, when the disease is idiopathic, is of a mild typhus character, and weakness of a greater or less extent, corresponding to the nature of the attack, is a constant accompaniment. The eruption usually appears on the third or fourth day of the introductory fever, first upon the neck and breast, and gradually extends over the abdomen and extremities, but seldom visits the face. The febrile invasion is occasionally very severe; the last stage being marked by a pricking sensation over the whole body, and the succeeding perspiration copious and of an offensive odour. The common symptoms of fever, head-ache, restlessness, and pains in the back and limbs, with the eruption may present variable remissions or exacerbations for seven, fourteen, or even twenty-one days, when the red vesicles assuming a white and opaque appearance, is the signal that a crisis is at hand, which generally occurs in the form of a free and natural perspiration, unpreceded by the prickly sensation in the hot fever, and unattended by the fœtor before experienced. The vesicles rapidly drying away, are converted into minute scales, which gradually fall off, leaving the surface in a healthy condition. For the most part, notwithstanding the anxiety and depression of spirits that attend this exanthem, a mild character is maintained throughout the whole range of the symptoms; but in some instances, where we have a worn out constitution to contend with, some extraordinary malignant symptoms appear, such as aphthous vesicles and sloughs in the mouth and face, and gangrenous spots on the lower extremities, which hasten a fatal termination. In the autumn of 1821 a miliary fever of this character prevailed in France, as an epidemic, particularly in the marsh lands, the season at the same time being unusually moist. The eruption was frequently confluent, every symptom greatly increased, and upon dissection, the mucous surface of the stomach and intestines, the bronchi, and the membranes of the brain, were discovered in a state of inflammation. There is no proof that the mili-

ary fever is contagious. It is not uncommon in lying-in women, although it then appears in a very mild form.

Treatment. The bowels should first be freely relieved by mild laxatives, and if much nausea prevail, an emetic should be employed to empty the stomach. Cooling drinks, a cool atmosphere, and tepid ablu-tion or sponging, will in mild cases be sufficient after the primæ viæ have been thus cleansed. In more severe attacks, tonics may be necessary, when the infusion of bark, or the sulphate of quinine may be preferred. In order to check or change the nature of the fetid perspiration, small doses of antimonial powder, in infusion of roses, containing an excess of sulphuric acid, may be given with advantage, and where the languor is distressing, a scruple of camphor, in the form of pill, may be added during the twenty-four hours.

On the subject of Fevers, see Huxham's works, Fordyce's Dissertations, Sydenham on Fevers; the works of Wilson, Jackson, Haygarth and Beddoes; Lind on Fevers; Pringle's Diseases of the British Army; the 3rd and 5th vols of the Med. Trans; the works of Willan, Heberden, and Hancock; Sir Gilbert Blane on the Yellow Fever; J. P. Frank, De Curandis Hominum Morbis Epitome, tom. i. (Manheim;) the Dublin Hospital Reports; the 5th vol. of the New York Med. Repository; Audral's Clinique Medicale; Portal's Cours d'Anatomie Medicale, tom. iii.; Armstrong on Typhus, and on the Morbid Anatomy of the Bowels, Liver, &c.; article Fever in Rees' Cyclopaedia; Broussais' Histoire des Phlegmasies, ou Inflammations Chronique; Southwood Smith on Continued Fever; the works of Chisholm, Johnson and Baillie; Rush's Medical Observations; Hall on Spotted Fever; the first number of the New York Medical Journal.

FIG, (Ficus.) The fruit of the Ficus Carica, a plant of the class Polygamia and order Diœcia; employed medicinally when dried, in the compound decoction of barley, (*Decoctum hordei compositum*,) and in the senna confection, (*Confectio sennæ*.) Externally they are applied when boiled, as a cataplasm, to the mouth, throat, face, &c.

FISTULA in ano. See *Anus*.

Fistula in perineo. See *Urinary passages*, diseases of.

Fistula Lachrymalis. See *Eye*, diseases of.

Fistula Salivary, is a disease occasioned by a wound of the parotid duct, which the continual escape of saliva prevents from healing; an error of the surgeon by wounding the duct in the puncture of an abscess in its neighbourhood, or severe blows, may prove the immediate cause of this most troublesome affliction. The salivary fistula has also arisen in a few cases, from the saliva insinuating itself into the cellular substance of the cheek, although this evil may generally be corrected in

time, by making a depending opening for the ready escape of the fluid. In addition to the inconveniences occasioned by salivary fistula, a worse consequence may be produced by the continued waste of saliva, rendering the processes of mastication and digestion imperfect. To remedy this complaint when the division of the duct is recent, the approximation of the sides of the wound and maintaining them with compresses and a roller will frequently suffice; some practitioners employ a suture to retain the sides in contact, but where the compress and roller are skilfully applied, there is but little occasion for its use. When, through neglect, the above plan has not succeeded, the sides of the duct remaining un-united, or when a salivary fistula has actually formed from the effects of a blow, and union by the first intention does not so readily ensue, the practice of Desault must be pursued, in introducing a seton from the external fistulous orifice into the mouth; an operation which may be thus performed.—“Place two of the fingers of the left hand between the teeth and the cheek, to keep the integuments tense, and preserve the gums from being injured; then pass a small hydrocele trochar with its cannula just before the opening of the posterior part of the duct, and through the cheek in a direction a little inclined forward; resigning the cannula to an assistant, you may now withdraw the trochar, and pass a thread into the cavity of the mouth, which upon the removal of the cannula may be attached to the end of a seton composed of a few thin pieces of ligature silk; this is drawn from within outward, but not so far as to come between the edges of the external opening, through which the thread alone passes, being fastened with sticking plaster to the outside of the cheek, and covered with a compress and roller. This seton must be changed once a-day, introducing regularly rather a larger one, and taking especial care not to bring it within the edges of the outer wound; after continuing this method for about six weeks, the seton may be discontinued, leaving in the thread for a short time longer, and when this is taken away, by touching the little external aperture remaining with caustic, we complete the cure, the contents of the duct being discharged into the cavity of the mouth.” During the process, some caution is necessary not to allow much movement of the jaw, and liquid food, as far as possible, should be substituted for solid aliment.

M. Beclard has recently cured cases of salivary fistula by the formation of a new passage in the inside of the cheek, by means of a leaden style, made to reach the excretory duct, at the point where its continuation was interrupted, converting the outer opening into a fresh bleeding wound, which he united with the twisted suture.

In some cases where the operation of Desault is objected to, the treatment by pressure, as recommended by that surgeon, has proved

successful, although at the expense of the parotid gland, which will be absorbed, when it is long continued; this may not be material, as the parotid of the other side, and the other salivary gland, may be relied upon for a sufficient supply of fluid to answer every purpose of convenience or necessity; the operation, however, is the readiest, and by far the surest means of cure.

See *Œuvres Chir. de Desault*, par Bichat, t. ii. Beclard, in *Archives Gen. de Medecine*, Juin, 1823; and *Monro's Works*.

FLAX SEED, (*Lin. Semina.*) The seeds of the *Linum usitatissimum*, the systematic name of the common flax. Class Pentandria, order Pen agynia. These seeds, also called linseed, form a demulcent and emollient drink by infusion in warm water; externally, the powdered seeds form one of the most common and useful emollient and maturating cataplasms. On expression, the seeds yield a large quantity of oil, (*Oleum Lin.*) employed in the preparation of liniments.

FLOODING. See *Uterus*.

FLUOR ALBUS. See *Uterus*.

FLUX, *Bloody*. See *Dysentery*.

FOMENTATIONS. Those applications, which are directed to the surface of the body, with a view of abating inflammation, relieving pain, and dispersing swelling. They may be thus classed. *Emollient*, as warm water, milk and water, chamomile flowers, &c. *Anodyne*, decoctions of poppies, eicuta, henbane &c. *Resolvent*, vinegar, spirits, solution of muriate of ammonia, muriate of soda, &c.

FOX-GLOVE, (*Digitalis*), a plant of the class Didynamia, and order Angiospermia.—Sedative, and diuretic in its operation and administered in inflammatory diseases, phthisis, active hemorrhages, dropsies and increased action of the heart. The leaves and seeds are used when dried and powdered; the first (gathered in July,) are principally to be depended upon. Dose gr. i to iij, united with ammoniacum, scap, calomel or opium, every six or eight hours, till the remedy acts by the kidneys. *Officinal preparations*. *Decoction of Fox-glove*, (*Decoctum Digitalis*), ʒij. to ʒiij. every six hours. *Infusion of Fox-glove*, (*Infusum Digitalis*), ʒj. every eight or ten hours. *Tincture of Fox-glove*, (*Tinctura Digitalis*;) ʒx. gradually increased to xl.

The preparations of digitalis are incompatible with the sulphate of iron, superacetate of lead, infusion and decoction of yellow cinchona bark; they are injured both in virtue and colour by the admission of light.

For the effects of digitalis taken in improper doses, and the necessary treatment, see *Poisons, vegetable*.

FRACTURES, (from *frango* to break.) This term signifies a solution of continuity of one or more bones, usually produced by external

violence, although sometimes effected by the action of muscles. Fractures admit of the great division into *simple* and *compound*, the former occurring when the surface of the limb is uninjured, and the second either when the bone has been broken through a wound of the integuments, or where the protruding ends have forced their way externally. Fractures also admit of other distinctions in respect to the direction in which the bone is broken; they may be *oblique*, *transverse*, or *longitudinal*, (the last only taking place in consequence of a gun-shot wound;) *complicated*, either with diseases, or an injury of large nerves or blood vessels, and *comminuted*, when the bone is broken in different places.

The causes of fractures, as before observed, may generally be attributed to external violence, but in many individuals we discover a predisposition, as it were, to the accident, by the existence of diseases in their system rendering the bones more brittle, such as syphilis, cancer, gout, serophula, and scurvy; the action of the muscles will also fracture a bone without the slightest external injury; whether the long bones can be thus broken is still a subject of controversy, the weight of evidence being rather in favour of the supposition.

General symptoms of fracture. The pain and loss of motion, although always present, are not sufficiently diagnostic, as they accompany a dislocation and frequently a mere bruise, but the crepitus or grating felt on rubbing one end of the broken bone upon the other, the separation and inequalities of the ends of the fracture, when superficial, the shortening of the limb, and the change in its form, are circumstances which, when united, are conclusive of the nature of the injury. *The peculiar characteristic symptoms* will be more properly treated of, under the head of each particular fracture.

OF PARTICULAR FRACTURES.

THE NASAL BONES, from their prominent situation, are much exposed to fracture, the soft parts being at the same time usually wounded or contused from the blows or falls upon the face, which are the causes of the accident. In most cases the fractured portions are depressed, and in order to replace them, a female catheter, or any such instrument, must be introduced into the nostrils, and used as a lever to push the fragments outwards, the index finger of the left hand meeting the point of the instrument from within; when the bones are again in situ, the muscles will retain them in their place, without any necessity existing for support by an elastic tube, formerly worn for some time afterwards, but which always gave rise to more or less irritation. These accidents, trifling as they may appear, are sometimes attended with dangerous consequences, either from the blow having been sufficiently severe to cause a concussion of the brain, or from the cribriform lamella and the

christa galli of the ethmoid bone being driven inwards so as to press upon that organ; in the first of these cases the treatment described under the article Concussion, in Injuries of the Head, must be pursued; in the second, with a pair of closed forceps, introduced gently into each nostril, the surgeon, after raising any depressed portions of the nasal bones, should endeavour to draw gently forwards the perpendicular ethmoidal process, for the purpose of relieving the pressure made by the cribriform lamella, and the christa galli, to which it is attached. Bleeding and a strict antiphlogistic treatment will be likewise demanded, thus anticipating the inflammation that ensues after so severe an injury.

FRACTURE OF THE LOWER JAW is the result of a violent blow or fall upon that bone. The usual seat of injury is between the symphysis, and the insertion of the masseter muscle, more rarely near the angle of the jaw, between the coronoid process and the masseter, and still more uncommon in the symphysis; the condyles and coronoid process are also occasionally broken off, or a fracture may take place in two or three places, both at the angles and condyles, or in any other portions of the bone; it may occur perpendicular to the basis of the jaw, obliquely, as is usually the case, and even longitudinally, by which a part of the alveolar process, with the teeth, becomes detached. The soft parts are severely contused or wounded in most cases, but seldom to such a degree as to interfere with the diagnosis, which is exceedingly simple. An acute pain is experienced in the part, an irregularity is detected at the base of the bone, the teeth are uneven in consequence of the fall of one portion from its situation, and a crepitus is perceived upon moving the fractured portion upon each other; if the fracture be seated near the symphysis, one fragment is drawn downwards and backwards, and the other supported by the muscles which close the jaw; when the bone is fractured in two places, the middle portion is pulled downwards and backwards by the muscles attached to the chin, and the two lateral pieces retained in their situation by the levators; the masseter will prevent much displacement, if the ramus be broken, from being attached to both pieces; and when the neck of the condyle is fractured, the pterygoideus externus will probably pull the condyle forwards. When a fracture occurs either in the rami or condyles, in addition to the other symptoms, a severe pain is complained of in the region of the ear. In the reduction of this fracture, which is easily accomplished, it is merely necessary to bring the ends in perfect apposition; this is ascertained by attending to the line which the base of the jaw ought to form, and observing that the arch of the teeth is as regular as before the accident; the difficulty consists in retaining this disposition, which can only be effected by supporting the lower jaw, and keeping it closed upon the upper one. After setting the fracture, an even piece of cork

should be placed between the teeth on each side of the mouth, where they are so irregular as to prevent the proper apposition of the upper against the lower, and some thick pasteboard softened with vinegar adapted to the outside of the jaw, along its side, and under its basis; over this may be applied a bandage with four tails, its centre upon the chin, the two posterior tails pinned to the forepart of a night-cap, and the two anterior to the back part of the cap. The pasteboard becoming dry, forms an admirable support, a piece of soap plaster being applied to the chin to prevent its being rubbed by the hard board; and this should not be laid aside, until the bone is firmly united, avoiding all such food as requires much mastication, rather living on broths, jellies, tea, &c., observing silence, and in fact refraining as much as possible from any act capable of moving the jaw. In some cases of very bad fracture it may be advisable to prevent the slightest motion of the jaw, admitting the aliment and the necessary medicines through a long tube passed down one of the nostrils to the œsophagus. Where the support and bandages described, are ineffectual in keeping the fractured parts of the bone together, a thick compress just under and behind the chin, fastened by a bandage, will sometimes succeed in confining them; and where the condyle is fractured, as it is continually forced forwards by the action of the pterygoideus externus muscle, and cannot be pressed back on account of its deep situation, another bandage must be applied so as to operate particularly upon the angle of the jaw, where a thick compress should also be placed. We occasionally observe rather a smart hæmorrhage from the rupture of a small artery, when the jaw is fractured, but it is easily subdued by slight pressure, and indeed frequently ceases directly the fracture is replaced.

FRACTURES OF THE SKULL. See *Head, Injuries and Diseases of.*

FRACTURES OF THE VERTEBRÆ. See *Spine, Injuries and Diseases of.*

FRACTURES OF THE STERNUM are occasioned by direct external violence, and generally attended by alarming symptoms, in consequence of the severe contusion of the integuments, or a greater or less injury of the thoracic viscera; where, however, a fracture occurs without depression, which is rendered evident by some inequalities of the surface of the sternum, and where the external injury is trifling, there is little difficulty or danger in the case, and the application of the soap plaster and a roller, the withdrawal of a few ounces of blood, and the antiphlogistic regimen, will suffice for the cure; but when the integuments are extensively wounded, and the bone is propelled backwards, so as to render an actual change in the form and dimensions of the chest apparent, we have to apprehend a contusion, or perhaps a laceration, of one or more of the thoracic organs; this is especially liable to happen

when the fracture is comminuted, and several instances are recorded, where the heart, or one or both lungs have been wounded. We occasionally witness the effusion of a large quantity of blood, in the cellular membrance of the anterior mediastinum, while sometimes a violent inflammation sets in, followed by suppuration, and eventually necrosis of the broken part of the bone. A wound of the lungs by a depressed portion of bone will also produce emphysema, forming a dangerous and almost hopeless complication of the injury. The nature of the accident is rendered obvious by the inequalities before noticed, by the depression or elevation of the broken pieces, by a crepitus, and an unusual motion of the parts during respiration. The breathing is difficult, accompanied with cough, severe pain, spitting of blood, and an inability to lie on the back. The necessary *treatment* in such severe cases of fracture, consists in the elevation of the depressed portion of bone, and the removal of any loose splinters; for the former purpose the common elevator may be employed, and for the latter, the forceps; it will rarely be necessary to use the trephine, unless in those instances where matter has formed under the sternum, or the bone is affected with a necrosis some time after the accident. It will be prudent to abstract blood after the accident, and subsequently, should any inflammatory symptoms demand it, at the same time keeping the bowels moderately open, and restricting the patient to low diet. Fractures of the sternum are perhaps more frequently produced by gun-shot wounds than from any other cause, and as there are generally numerous splinters, great care is required in their extraction.

FRACTURES OF THE RIBS may be caused either by a blow or fall, and are frequently very difficult to detect, especially in fat persons; this arises from the circumstance that a broken rib is never displaced, in the direction of its diameter or its length, but always either outwards or inwards, the attachments at both extremities preventing any shortening, and the same set of muscles acting upon both fractured portions, hindering either of them from approaching the neighbouring ribs. The most serious evil to be apprehended from these accidents, is a wound of the pleura and lungs from a spicula forced inwards, by which emphysema is inevitably occasioned; a pointed extremity forced inwards may also cause an extensive extravasation of blood, or by its irritation lead to inflammation in the chest.

In the detection of this accident, where no displacement can be perceived, the hand of the surgeon should be placed on the spot where a pricking pain is complained of, and upon the patient being desired to cough, a slight crepitus may be perceived; when, however, the precise situation of the fracture cannot be ascertained, if the force of the fall or

blow have been considerable, and a pain of the above character is complained of, the practice should be the same as if the nature of the injury were perfectly clear. The object in *treatment* is to replace the divided portions, when they are discovered, and then to keep them as motionless as possible. For this purpose a piece of soap-plaster should be applied in the situation of the injury, then a compress, and afterwards a broad bandage carried tightly and repeatedly round the chest; by this measure we restrain the motions of the rib in respiration, and compel the diaphragm to perform an additional office in that act. Should the fractured part be depressed inwards, two compresses should be employed, one placed on the anterior, and the other on the posterior part of the bone. To prevent the bandage from slipping down, it may be attached to a scapulary, but in order to ensure constant pressure, which can scarcely be accomplished by a bandage, as it so soon slackens, and prevent any risk of the removal of the roller by slipping, it is perhaps the best plan to encase the chest with a broad fold of strong linen, and place it up with a thin cord, so as to regulate the motions of the ribs, and obtain a steady compression. Copious and frequent bleedings may be necessary after this accident, as long as the slightest tendency to inflammation exists; the irritating cough which is a pretty constant attendant, may be soothed by a mild demulcent containing a little opium; the bowels should be kept free, and rest and moderate diet enjoined.

FRACTURES OF THE SACRUM are very uncommon; owing, as Boyer supposes, to the spongy texture of the bone, its thickness, and protected situation; their occurrence must be effected by extreme violence, such as falling from a height, on the part, or the passage of the wheel of a carriage over it. The accident is always attended with danger from the probable damage to the sacral nerves, and hence the usual symptoms are, retention or inability to restrain the flow of urine, involuntary evacuations of the feces, and paralysis of the lower extremities. When the fracture is situated high up, but little or no displacement takes place, on account of the thickness of the bone, but when it occurs towards the extremity, the fractured portions may be driven inwards.

The most active treatment is necessary to prevent or check inflammation; the lancet, leeches to the part, the application of cold lotions, and perfect rest, are all indispensably requisite; with respect to the local treatment, all that can be done after the inflammation has subsided, is to apply a piece of soap plaster to the fracture, and a roller round the pelvis, or a T bandage, in order to promote union as much as possible.

FRACTURE OF THE OS COCCYGIS, generally takes place in elderly persons, in whom the different pieces of this bone have become ankylosed, by which process the power of motion, which could formerly elude violence, is lost: under such a circumstance, a fall on the buttocks may

occasion its fracture. The accident is readily recognized by the mobility of the fragments, and the pain occasioned in walking, owing to the action of the glutæi muscles. The treatment consists principally in the maintenance of perfect rest, reducing the accompanying inflammation by bleeding, and the antiphlogistic regimen, and keeping the patient on his side, at the same time protecting the parts by a soap plaster and bandage. The practice of passing the finger into the rectum, with a view to replace the fractured portions is hardly advisable, as in old persons the ability of a reunion is very limited; all attempts to reduce the fracture by such means are also made at the risk of injuring the soft parts, already severely affected by the cause that occasioned the fracture.

FRACTURES OF THE OS INNOMINATUM can hardly occur but by the passage of a heavy vehicle over the pelvis, a fall from a considerable height, or a kick from a horse. In some cases the two ossa innominate may be broken, but in general, one alone is fractured, and usually through the ilium, although the ischium and pubis are occasionally the seat of injury. When the violence has been very great, the bones of the pelvis may be crushed in several directions, besides being dislocated. These fractures are always attended with great contusion of the soft parts, and in most instances with severe injury of the pelvic viscera, too frequently proving fatal. When the force that has fractured the bone has not been very great, the detection of the injury is sometimes difficult; the nature of the accident may be suspected, if the patient have been exposed to a cause likely to produce it, when great agony is complained of in the pelvic region, and the motion of the trunk and lower extremities is painful and difficult. If the sufferer be very thin, a crepitus, and perhaps the fragments may be distinguished, by placing him horizontally, bending his thighs and legs, with his head and chest elevated, and taking hold of the os innominatum, and moving it in different directions.

"When a fracture of the os innominatum," says Sir A. Cooper, "happens through the acetabulum, the head of the bone is drawn upwards, and the trochanter somewhat forwards, so that the leg is shortened, and the knee and foot turned inwards; such a case may be readily mistaken for dislocation into the ischiatic notch." The nature of the accident, and the violence inflicted on the soft parts, will facilitate the diagnosis, especially united to the effects produced upon the whole system by the fracture, and which will hereafter be described. "If," says the same authority, "the os innominatum be disjoined from the sacrum and the pubes and ischium are both broken, the limb is in a slight degree shorter than the other, the knee and foot, however, being turned outwards." Of course when the fracture is unattended with displacement there is a greater probability of cure; the violence to the soft parts being

ess, and but little mischief comparatively occurring in the pelvic cavity ; and a position in which all the chief muscles attached to the pelvis are relaxed, discutient applications, and a broad roller are all the necessary local means, whilst the system must be protected against the slightest inflammatory attack by bleeding, leeches, and a careful attention to diet. In those unfortunate cases where there is great contusion, and the bones are badly broken, and depressed, the symptoms are alarming on a very short period after the accident. "The viscera may be bruised or lacerated, and the large nerves contained in the pelvis, or the spinal marrow itself injured ; hence extravasation of blood or urine in the cellular membrane, ecchymosis in the muscles, wounding of the kidneys, complete loss of motion, and paralysis of the lower extremities ; discharge of blood, or a black bilious matter from the stomach and bowels ; retention of urine ; fever ; painful tension of the abdomen, from inflammation of the peritoncum, the formation of abscesses, sloughing, and death."—(Boyer.) Sir A. Cooper observes, that in the fracture of the pubes, near its symphysis, the safety of the patient will greatly depend upon the condition of his bladder at the time of the accident, if it be in state of distention, that organ will be burst, if not, it escapes injury. The treatment in these deplorable cases, must be directed to the alleviation of the sufferings of the patient, which is all the good we can accomplish. The use of the catheter is indispensable whenever a retention of urine exists, let the accident be severe or not, and in the former event, it is frequently necessary to allow it to remain in the bladder for a considerable period after the accident.

FRACTURES OF THE THIGH.—I. *Fractures of the upper part of the Femur.*—These take place in three different situations. 1st. Through the neck of the bone, within the capsular ligament. 2nd. Through the neck of the bone, at its junction with the trochanter major, external to the ligament, and 3rd, Through the trochanter major, beyond its junction with the neck of the femur.

1st. *The fracture within the capsular ligament*, is of rare occurrence, except in persons at an advanced period of life, which Sir A. Cooper, who in a very extensive practice, has only witnessed two instances, where the accident took place in individuals under fifty years of age, attributes to the interstitial absorption which the neck of the femur undergoes in old people, whereby it becomes shortened, and altered in its angle with the shaft of the bone. The accident is recognized by the following appearances ; the leg is one or two inches shorter than the other, becoming so in a few hours, and which may be best observed by placing the patient in the recumbent posture, and comparing the malleoli ; the heel of the injured limb rests in the hollow between the malleolus internus and tendo Achillis of the other leg, and the foot and knee are

inverted. Upon extension, the limb is readily drawn to its proper length; but when this is abandoned, the muscles drag it into its former position; and this can be repeated until the muscles acquire a fixed contraction. This accident has been sometimes mistaken for a dislocation upon the dorsum of the ilium, and the rare occurrence of the inversion of the limb has sometimes served to increase the difficulty of diagnosis; in the majority of cases, however, the eversion of the limb is sufficiently characteristic, and when added to the extension and retraction of which the leg is capable for some time after the injury, confirmatory of its nature. After this fracture but little pain is experienced, when the patient is perfectly at rest in the horizontal position; but any attempt at rotation is attended with suffering, from the broken end of the bone rubbing against the inner surface of the capsular ligament; flexion outwards can be accomplished with some little difficulty, but if the thigh be directed towards the pubes, it is not so readily performed, and the pain is considerable. The trochanter is drawn up towards the ilium, but projects less on the injured than on the other side, from its being no longer supported by the neck of the bone, and resting on the edge of the acetabulum. Where any doubt exists as to the nature of the accident, let the patient be supported by an assistant, in the standing posture, resting his weight upon the sound limb; the shortening of the leg (the toes touching the ground while the heel does not reach it, the eversion of the knee and foot, and the diminution of the prominence of the hip, will then be observed. The least attempt to bear upon the fractured limb, is productive of pain. A crepitus may be perceived upon rotating the limb, when it is drawn out to its full length, as the broken ends of the bone are then brought into contact.

The necessity of distinguishing between this fracture, and a dislocation upon the dorsum of the ilium is apparent, when we reflect upon the opposite modes of treatment each accident demands; it will always be prudent to wait, in order to give time for the muscles to contract and to produce that eversion indicative of the fracture, for to confound it with dislocation, is to expose the patient to useless and painful extensions which at an advanced age, and perhaps in a debilitated state, may increase the primary injury to a fatal extent. Women are more frequently the subjects of this fracture than men, the probable reason for which, consists in the more horizontal position of the neck of the bone, and the comparative feebleness of the female constitution. The immediate cause of the accident is usually of a very trifling nature, and one from which we could hardly apprehend such a serious result, without a knowledge of the interstitial absorption which is in progress in aged people; a sudden slip from a slightly elevated side walk into the c-

riage way, or striking the foot against a small projection in the floor, has been sufficient to produce it; it may also be occasioned by greater violence, especially by a fall upon the trochanter, but the practitioner must ever bear in mind the probability of its occurrence from the *slightest* cause, that he may not necessarily attribute so severe an injury to the operation of a serious accident.

Much discussion has arisen respecting the mode of union of the fractured neck of the thigh-bone; some practitioners have considered that a bony callus forms in this situation, as well as in other parts of the body, while others, with far more justice, have contended that the union is by ligament alone. Sir A. Cooper lays it down as a general principle that these fractures, those of the patella, olecranon, the condyles of the humerus, and the coronoid process of the ulna, never unite by any other mode than ligament, and the arguments he adduces in favour of his opinion, the cases to which he refers, as well as the experience of many other surgeons upon the subject, are sufficient to put the subject at rest, even in opposition to the repeated declarations of Desault. The first reason that may be assigned why a bony union does not take place, is the want of a proper apposition of the bones; the second, a want of pressure of one bone upon the other, (even if the length of limb were preserved,) occurring from the secretion of a large quantity of serous synovia, which extends the ligament and prevents the contact of the bones by pushing the upper end of the body of the thigh bone from the acetabulum; and this fluid after a time becoming absorbed, but not until the necessary inflammatory process for the deposit of ossific matter has ceased, a ligamentous substance is effused into the joint from the interior of the synovial surface; but the third and principal reason why the union is solely ligamentous, depends upon the almost entire absence of ossific action in the head of the thigh bone when separated from its cervix, its life being supported by the ligamentum teres, which has only a few minute vessels ramifying from it to the head of the bone:—scarcely any change therefore takes place in the divided portions, no deposit of cartilage or bone similar to that in other fractures ensues, but instead, a deposition of ligamentous matter, covering the surface of the cancellated structure with little patches like ivory, on the head of the bone.

Treatment. Confine the patient to the recumbent position for ten days or a fortnight, until the inflammation and pain have subsided, supporting the limb by a pillow placed under it throughout its length, keeping another rolled up under the knee; the sitting posture may then be assumed in a high chair, in order to prevent too great a degree of flexion; in a few days afterwards, walking for a short time with crutches may be permitted, bearing but very slightly on the injured limb at first;

by degrees the weight of the body may be increased, until the ligamentary production becomes thickened, and the muscles increased in their power. A high-heeled shoe and the use of a stick may be lastly employed, by which the halt is diminished, and although we can never hope for a perfect cure, still by such measures, we are enabled to prevent any very considerable deformity, and to restore a useful degree of motion to the limb, without any adventitious support.

2nd. *The fracture of the neck of the femur, external to the capsular ligament, and into the cancelli of the trochanter major*, is generally occasioned by considerable violence, as a heavy fall, or a severe blow. In many cases there is a considerable difficulty in distinguishing between this accident, and the fracture within the capsule: the following appearances and attendant circumstances may perhaps serve as diagnostic signs. The injured leg is shorter than the other by half to three quarters of an inch; the foot and toe are everted, much pain is felt at the hip, and on the inner and upper part of the thigh, and the joint loses its usual roundness; the accident usually occurs in the earlier periods of life; a crepitus is perceived upon slight motion, and without the necessity for extension; great ecchymosis generally follows the injury, accompanied by swelling and tenderness to the touch. Thus, the time of life at which the accident occurs, the greater extent of suffering, added to a high degree of irritative fever, and subsequently the period of time, (sometimes many months,) before union of the fractured parts is effected, are the surest proofs of the nature of the injury.

The seat of the fracture may be slightly varied in different cases, in being more or less complicated, but it is always external to the ligament placed at the neck of the root of the thigh bone, the trochanter being split, and the neck of the bone received into its cleft. When, as in some rare instances, this accident occurs to the aged, it is generally fatal, from the great violence necessary to its production; but in young persons, a tedious confinement is only to be dreaded. An ossific union takes place after the fracture of this portion of the thigh bone, both on account of the bones being held together by the surrounding parts, and from the nutrition of the head of the bone not being so completely cut off, as to prevent the ready formation of callus.

Treatment. • The great principle is to keep the bones in approximation, by pressing the trochanter towards the acetabulum, preserving the length of the limb by applying a roller round the foot of the injured leg, and bending the feet and the ancles firmly together, so as to prevent their retraction, and thus render the uninjured side the splint to that which is fractured, giving it a continued support. A broad leather strap should also be buckled round the pelvis, including the trochanter.

major, to press the fractured portions of the bone firmly together, thus keeping the limb in a straight line with the body.

3rd. *Fractures through the trochanter major* occur at every period of life, and in consequence of severe injuries; the fractures are oblique, through the trochanter, without affecting the cervix femoris. The nature of the accident may be recognized from the following appearances:—the leg is a very little shorter than the other, the foot is benumbed and greatly everted; the broken portion of the trochanter is either drawn forwards towards the ilium, or falls towards the tuberosity of the ischium, being widely separated from the remaining portion connected with the neck of the bone. When the trochanter has fallen considerably towards the ischium, or is much drawn forwards, it is difficult to detect any crepitus; the patient experiences great pain upon the slightest motion, especially when an effort is made to assume the sitting position. When the fracture happens below the insertion of the principal rotatory muscles, the lower part of the bone is greatly raised by the action of the glutæus maximus, and the limb afterwards becomes deformed by the exuberant callus that succeeds. This fracture unites firmly, and quicker than when the cervix is broken at the root of the trochanter, and the patient recovers a very good use of the limb.

In the *treatment* of this accident, the chief indication is to keep the trochanter in its proper position, for which purpose the patient should be laid on a mattress, which may be prevented from sinking under his weight by placing it on a thick smooth board; a broad web may be then passed round the body over the hips, fixed with two buckles and straps; immediately under the injured trochanter should be placed a well stuffed pad covered with chamois leather, about six inches long, three broad, and three thick, ending gradually in a point, so that on tightening the web, the pad may pass into the hollow beneath the trochanter, forcing it upwards and forwards into its natural position: in addition, another pad, made very thick, about eight inches square, in the shape of a wedge, should be placed under the upper part of the thigh. The limb resting on the heel, a wide board may be fixed to the bed-posts with two pieces of wood padded, and fastened thereto for the reception of the foot; by which means all lateral motion is prevented, a cushion being put opposite the other foot, so that pressure can be made against the board, thereby preventing the body from slipping down in the bed. An easy modo can be contrived for the necessities of the patient without materially disturbing this position, and these measures, in addition to a little aperient medicine, and a generous diet, will easily effect a cure.

Fracture of the Epiphysis of the Trochanter Major is a very rare accident; it may be produced by a severe fall or blow directly upon the

trochanter. The only case reported by Sir A. Cooper, occurred in the practice of Mr. Key, in Guy's Hospital, in the person of a young girl, who in falling struck her trochanter violently against a curb-stone. No immediate suffering was occasioned, nor was the power of the limb much impaired, but from a great increase of pain in the thigh, and the accession of constitutional symptoms, she obtained admission into the hospital a few days after the accident; upon examination, the injured leg was considerably everted, and appeared about an inch longer than the sound limb; passive motion was permitted in all directions, but abduction caused severe pain; with the exception of the rotators inwards, the command over the muscles was perfect. No crepitus or displacement of bone could be detected, nor was it until death ensued, in consequence of fever and abdominal inflammation, that the nature of the injury was ascertained.

Fracture below the Trochanter. This accident is more difficult to manage than any occurring in this region, and this is the more unfortunate, as great deformity is the consequence of its ill treatment. The fracture just below both trochanters may be recognized by the end of the broken bone being drawn forwards and upwards, so as to form nearly a right angle with the body, the cause of this position being the contraction of the iliacus internus and psoas muscles, assisted by the pectinialis, and perhaps by the first head of the triceps. The bone commonly unites, not only with shortening, but with a great projection forwards, and the union is feeble, from the circumstance of the ossific deposit only taking place on that side where the inflammation is kept up, by the pressure of one bone on the other. If pressure be made upon the projecting part, it only adds to the suffering, without preserving the bone in its proper situation.

In the *treatment* of this fracture, in which our utmost exertions are required in preventing a great distortion, and the miseries that may occur from an imperfect union, two circumstances require attention; the one is to elevate the knee very much over a double inclined plane, and the other to place the patient in a sitting position, well supporting him by pillows during the progress of its union; the degree of elevation of the body which is required, will be readily ascertained by observing the approximation of the fractured extremities of the bones; and this position is demanded, to relax the psoas and iliacus muscles, and thus prevent the elevation of the upper part of the bone. In this way, and this only, can the great deformity be prevented. When by this posture the extremities or the bones are brought into proper apposition, and all projection of its upper portion is removed, either the splints may be applied which are commonly used in fracture of the thigh bone, or, what

a better, a strong leather belt lined with some soft material, may, by means of several straps, be buckled around the pelvis.

Fracture of the external or internal condyle of the femur into the joint may be detected by the displacement of the condyle. In the *treatment*, the limb should be extended, and after the accompanying inflammation has been reduced by evaporating lotions, or the use of leeches, a roller should be applied round the knee, and also a piece of stiff pasteboard, about sixteen inches long, sufficiently wide to extend entirely under the joint, and to pass on each side of it, so as to reach the edge of the patella; this may be dipped in warm water, and placed under the knee, confined by another roller. The pasteboard drying, adapts itself to the form of the joint and confines the bones, keeping the limb in that straight position in which, as Sir A. Cooper says, the tibia presses the extremity of the broken condyle into a line, with that which is not injured. In five weeks after the accident, passive motion may be commenced, in order to prevent ankylosis.

Fractures of the thigh bone between the trochanters and condyles, are the frequent result of actual violence, particularly falls. It is however by no means necessary that direct force should be applied in the production of such accidents; the action of muscles under a sudden apprehension of danger being alone sufficient. There is but little difficulty in detecting the injury; a local and acute pain is complained of at the moment of its infliction, the ability of moving the limb is lost, whilst an unusual mobility of one portion of the limb is perceived, and on moving the two ends of the fractured bone against each other, a crepitus is usually distinct. The deformity of the limb is likewise diagnostic of the accident; in an oblique fracture, the broken limb is always shorter than the other, those muscles which are attached to the lower portion of the femur, the patella, tibia and fibula, drawing up the lower over the upper portion of the bone; the transverse fracture is less liable to displacement than the former, from the ends of the bone forming a mutual resistance to each other, and when it does occur, either both fragments are moved, the one outwards and the other inwards, or one remains in its place while the other is separated.

Treatment.—The method pursued by the celebrated Pott, was long practised after his death; and simply consisted in placing the limb upon its side, with the knee bent, in which position the proper splints and rollers were applied. The total impossibility of fulfilling the intentions of Mr. Pott, who considered that his mode relaxed “the whole set of muscles belonging to, or in connexion with the broken bone,” and the manifest advantages of the straight position, or the use of the inclined plane, has, for some years past, led to the abandonment of the practice he recommended, in favour of a treatment that easily accomplishes the

desired object, and with less annoyance to the patient, to whom the old position was wearisome in the extreme. M. Desault introduced the straight position in France, which is still in universal use in that country, in all cases except when the bone is broken directly below the trochanters, when the bent position is considered the most advantageous by many practitioners. In the straight posture, after the bones are brought into contact, and the necessary extension made, a piece of soap plaster is applied round the fractured part, and over that, the many-tailed bandage; the splints, four in number, are then adjusted, one extending from the hip to the outside of the foot; a second, from the space between the scrotum and the thigh down to the inside of the foot; a third under the buttock, and extending a little beyond the heel; and the fourth, (a short one,) immediately over the fracture, in order that the whole apparatus may form a circle upon which the tapes may be conveniently arranged. These several splints must be well padded, as well to prevent friction as to ensure a uniform pressure by filling up all inequalities between the splints and the limb.

The treatment by the inclined plane has met with numerous advocates, and various contrivances have been invented, agreeing in the mode of support, but varying in the nature of the apparatus. In England, the fracture frame devised by Mr. Earle, is principally used, and appears to be adequate to every intended purpose; it consists of two boards, ten or eleven inches in breadth, one reaching from the heel to the ham, the other from the ham to the ischium; under the knee joint they are united at an angle, thus forming two sloping surfaces, (the obliquity of which can be altered as occasion requires,) covered with cushions; a foot board is attached to their extremities, and near their edges holes are made, furnished with small pegs. After the bone has been set, and placed on this frame, the machine is rendered perfect by the introduction of two long splints, one reaching from the hip to the side of the knee, and the other along the inside of the thigh. The soap plaster is placed as before with the many-tailed roller, &c. and the whole retained in position by tapes attached to the pegs on the inclined boards.

In those cases where much inflammation prevails, the splints and roller must not be applied too soon; cold evaporating lotions to the parts, and the antiphlogistic regimen being first resorted to, in order to subdue the inflammatory symptoms. It frequently happens that the muscles are thrown into a violent state of spasm, after fracture; in such cases the use of the lancet, and moderate doses of opium are demanded. When the limb is once adjusted, the less it is disturbed the better, and the use of the many-tailed bandage enables us to change any part for the sake of cleanliness, without interfering with the position; in the

employment of cathartics, some caution is necessary, as, in the early stage of union, a displacement would be readily effected by the movements of the patient in repeated evacuations. The fracture bed of Mr. Amesbury of London, is ingeniously constructed, and admits of a vessel being introduced under the sufferer, upon the removal of a pad in the mattress. The bedstead should be firm and level, fitted with a horse-hair mattress, either when the straight position or the inclined plane is preferred in the treatment of the fracture.

FRACTURES OF THE PATELLA generally occur in the *transverse* direction of the bone, and are occasioned by two causes : first, from blows produced by falls upon the knee, or received upon the patella in the erect position of the body ; secondly, from the action of the extensor muscles upon the bone.

In this accident the upper part of the bone is drawn from the lower, being elevated by the action of the rectus, vasti, and cruralis muscles, whilst the lower portion is retained by the ligament, passing from it to the tubercle of the tibia. The extent of separation depends upon the laceration of the ligament, for when that is but little torn, the division may not exceed half an inch, whilst, when it is greatly injured, a separation to the extent of four or even five inches may ensue. The accident is at once detected by the depression between the two portions of bone, the fingers passing down to the condyles of the femur, and by the elevated portion of the bone moving readily on the lower and fore part of the thigh. The power of extending the limb, and of supporting the body on that leg is lost, and in a few hours after the accident, a considerable extravasation takes place upon the fore part of the joint, which is absorbed in a few days. Severe inflammation and fever generally succeed, and for some time afterwards the joint is swollen, as well from the free secretion of synovia, as from the effusion arising from inflammation. Notwithstanding these subsequent symptoms, there is but little pain at the time of the accident, and in some instances the constitution is scarcely affected, although in others, the derangement may increase to an alarming degree. Where the separation between the fractured portions of bone is very small, and any doubt arises as to the nature of the injury, the diagnosis may be assisted by bending the knee, which removes the lower from the upper part, in consequence of the attachment of the ligamentum patellæ to the tibia.

The mode of union is entirely ligamentous, and may be promoted by the following *treatment*. A leathern strap should be buckled around the thigh, above the broken portion of the patella, and from this another strap is carried under the middle of the foot, the leg being extended, and the foot raised as much as possible ; this strap may be confined to the foot and to the leg by tapes, so as to secure its close apposition to each

side of the tibia. A roller should also be applied round the leg, from the ankle to the knee. The patient must be restrained in this position for five, or even six weeks, if he be advanced in years; a slight passive motion may be then commenced, in order that the extensor muscles may not lose their power by disuse, and continued from day to day, until the flexion of the limb be complete. In addition to these measures, it will be necessary in nearly every case to apply cooling lotions to the knee, and leeches, where the ecchymosis is considerable, delaying the placement of any bandages until the inflammation has subsided. A low diet and attention to the bowels are, of course, addenda to this treatment.

In the *longitudinal* or *perpendicular fracture of the patella*, which is very uncommon, the detection may not be so easy as in the former accident, as a very slight degree of separation ensues. It would of course be recognized by a depression between the two fractured portions. The union in this accident is bony, and is readily effected, after an extension of the leg, and the use of evaporating lotions and local depletion, by the application of a roller round the leg, and then a laced knee-cap, with a strap to buckle around the knee, above and below the patella, with a pad on each side, to bring its parts as nearly as possible into contact.

FRACTURES OF THE LEG may be transverse or oblique, and may occur in both the tibia and fibula at the same time, or in only one of these bones.

When the *tibia* is obliquely fractured, it is generally from below upwards, and from within outwards, the end of the upper fragment appearing under the skin at the front and inner part of the leg, while the inferior fragment is drawn outwards and backwards. Should both bones of the leg be fractured, a change in the direction and shape of the limb is perceived, the foot being turned outwards; pain and incapability of motion is complained of, and there is a distinct crepitus. When the fracture takes place near the knee, the displacement is very trifling, on account of the thickness of the tibia in that situation, but the danger of a future ankylosis is greater. Upon the whole, we may say, that in those instances where the tibia only is fractured, the accident usually occurs in a transverse direction, and if the fracture be seated high up, detection is rather difficult, from the fibula not allowing the broken portions to be moved on one another; a very strict examination, however, passing the fingers along the anterior side of the tibia, will detect an inequality, from the slight covering the bone possesses, and the motion of the pieces may be perceived by grasping the opposite ends of the bone, and pushing them in different directions. Where the fracture of the fibula is added to that of the tibia, the one injury is in most instan-

subsequent to the other, arising from the slender bone not being able to support the weight of the body or even the action of the muscles after the tibia has given way. The fibula itself is occasionally fractured alone, either from direct violence, or by some force operating through the medium of the foot, when that member is suddenly twisted either inwards or outwards. The symptoms of this accident are, an irregularity and unnatural moveableness of some point of the lower end of the bone, a crepitus which can be felt by pressing upon or moving the part; mobility of the whole foot transversely or horizontally; a facility of bringing the lower end of the fibula towards the tibia; a change in the axis of the limb upon the foot; distortion of the foot outwards and sometimes backwards; projection of the internal malleolus, and a disappearance and recurrence of all these symptoms as extension is practised or discontinued. The frequent complications of a fracture of the fibula are, the rupture of the internal lateral ligaments, the detachment of the point of the internal malleolus, and fracture of the lower part of the tibia. When these injuries originate from a violent twist of the foot outwards, they precede the fracture of the fibula; but when they are caused by a twist inwards, they follow the breaking of that bone.

Treatment.—In the fracture of both tibia and fibula, the knee should be moderately bent, in order to relax the strong muscles of the calf of the leg; after a proper degree of extension, bringing the fractured ends into apposition, the leg should be placed (lying on its outer side) on an under splint well padded, and on which a many-tailed bandage has been arranged. The surgeon, being satisfied that the bones are in contact, may apply the soap plaster and fasten the bandage, as in other fractures, on the upper surface of the leg; a soft pad is to be placed over, and finally a splint, when the straps may be tightened. The same precautions are necessary to obviate or relieve inflammation in these accidents as in fracture of the thigh. Some practitioners prefer to this mode of treatment, the straight position, resting the leg upon the heel, with a splint on each side; but a preference may certainly be given to the bent posture, not only because the patient can submit to it with more ease, but also from the circumstance that the knee does not become so incapable of flexion and use afterwards, and recovery ensuing in a much shorter time than when the limb has been extended.

The head of the tibia is sometimes obliquely fractured; if it occur into the knee joint, the treatment will be precisely the same as that required in the oblique fracture of the condyle of the femur, taking care to commence early passive motion, to prevent ankylosis. If the fracture do not extend into the joint, the limb may be placed in the double inclined plane; for the cause of deformity being the elevation of the lower portion of the tibia, which is drawn up on the side of the knee joint, as the

fracture is on the inner or outer side of the tibia, the weight of the leg, as it hangs over the angle of the inclined plane, will keep the limb constantly extended, and the bones in contact.

FRACTURES OF THE SCAPULA. From the situation of this bone, its mobility, and muscular coverings, these accidents are uncommon, and when they do occur, their seat is usually in those parts which are the most superficial, such as the acromion, and the inferior angle of the bone; whilst the neck of the bone, and the coracoid process are more rarely the subjects of the accident. In a *fracture of the acromion*, upon comparing the shoulders, the roundness of the injured side is lost, and part of the attachment of the deltoid muscle being broken off, the head of the humerus sinks towards the axilla as far as the capsular ligament will allow. On tracing the acromion from the spine of the scapula to the clavicle, a depression is felt at their junction, from the fall of the fractured portion; a crepitus can be perceived by rotating the arm with the hand upon the acromion, and the patient complains of a heavy sense of weight, and an inability to raise the limb. This fracture *will* unite by bone, but from the difficulty of producing adaptation, and preserving the limb perfectly quiet, the union is generally ligamentary. In the *treatment* of this accident, the head of the humerus is the splint which is required to keep the acromion in its natural situation; with this view the elbow is raised and the arm fixed, thus lifting the bone to the under surface of the acromion, where it supports the broken process. The deltoid muscle should also be relaxed, by a cushion being placed between the elbow and the side; the arm should then be raised, and the elbow carried a little backwards, and bound to the chest by a roller, in which position it should be retained for three or four weeks, moving the limb as little as possible. But little inflammation, and scarcely any constitutional disturbance, succeeds this accident. A pad in the axilla is inadmissible, as tending to throw out the head of the humerus, by which the broken portion of the acromion becomes separated from the spine of the scapula.

Fracture of the lower angle of the Scapula must be produced by the direct application of violence, and is distinguished by the lower fragment being drawn forwards by the serratus major anticus muscle, the rest of the bone remaining in its natural situation; a depression between the broken portions and their separation is distinctly perceived. In the *treatment*, the scapula should be pushed towards the fragment, by directing the arm inward, downward, and forward, and retained there by a roller and supported by a sling; the fragment should also be kept backward with compresses and a roller.

Fracture of the neck of the Scapula. This accident has been frequently mistaken for a dislocation, in consequence of the glenoid cavity

becoming detached from the scapula, when the head of the bone falls with it into the axilla; the shoulder in this case falls, there is a hollow below the acromion from the sinking of the deltoid muscle, and the head of the humerus can be felt in the axilla. The signs to distinguish this accident from dislocation are, the facility of lifting the humerus forward, and its immediate fall upon a withdrawal of the support, added to the crepitus, which is generally very apparent at the extremity of the coracoid process, when the arm is rotated. The *treatment* "consists in attention to two principles; the first is to carry the head of the os humeri outwards; and the second, to raise the glenoid cavity and arm. The former is effected by a thick cushion being placed in the axilla, which presses the head of the bone and glenoid cavity outwards, and confining them by the clavicle bandage; the latter is produced by placing the arm in a short sling, when the raised head of the humerus supports the glenoid cavity and neck of the scapula, and keeps it steadily in its place until union is produced, which in adults will require from ten to twelve weeks."

Fracture of the coracoid process is indicated by its being drawn forwards by the pectoralis minor, coraco-brachialis, and the short head of the biceps muscles. It is a rare accident, and easily relieved by relaxing the muscles attached to the process, bringing the arm, for this purpose, forwards across the breast, and confining it in a sling, while the shoulder is kept downwards and forwards, and a compress retained by a roller, placed just under the broken part.

FRACTURES OF THE CLAVICLE. These accidents are very common, from the slight protection afforded the bone externally, and its want of support in the middle. It may be broken at any part, but the centre is the most frequent situation of the injury, which is caused either by the application of force immediately to the bone, by the fall of a heavy substance upon it, or to its ends in a fall on the point of the shoulder, or on the hands when the arms are extended. These fractures are usually attended with displacement, except when they occur at the scapular extremity, and within the ligament, tying the clavicle and coracoid process together; when displacement ensues, it is always the external portion of the bone, as the internal part is restrained from motion by ligaments and the action of muscles. The external portion, drawn down both by the weight of the arm and the action of the deltoid muscle, and forward and inward by the pectoralis major, is carried under the internal portion, which projects over it; the arm falls towards the breast, cannot be lifted to the head, the shoulder and upper extremity are nearer the breast than those of the opposite side, and a crepitus may be detected, although the attempt gives great pain, and is unnecessary from the clearness of the other symptoms.

Treatment.—The plan of Desault possesses many advantages over the old mode, which consisted in the application of the figure of 8 bandage, the shoulders being held back by an assistant. That eminent surgeon, observing that this bandage produced a great excoriation about the arm-pits, and also induced the fractured parts to overlap one another, proposed a new method of arrangement. He first caused extension to be made, by converting the humerus into a lever, in carrying its lower end forward, inward, and upward, pushing the shoulder backward, upward, and outward, and placing a cushion in the axilla to act as a fulcrum. The fore-arm was now bent, and the elbow pressed firmly against the breast; thus the humerus brought the shoulder outwards, and the ends of the fracture became situated opposite each other, and were retained by the application of rollers. M. Boyer has likewise proposed an apparatus for these fractures, more simple than that of Desault, which is rendered somewhat complicated by the manner in which he fixed his bandages. M. Boyer agreed in the necessity of placing a cushion in the axilla; the remainder of his apparatus consisted of a girdle of linen cloth, passing round the trunk on a level with the elbow, fixed on by three straps and as many buckles; at an equal distance from its extremities were placed externally two buckles on each side, two before and two behind the arm. On the lower part of the arm was laced a piece of quilted cloth five or six inches broad, to which four straps were attached, corresponding to the buckles, and these being fastened together, the arm was kept close to the trunk and prevented from moving either backward or forward. It is of the utmost consequence that the rising end of a fractured clavicle should never be considered the displaced portion; the mistake has been repeatedly committed, and pressure applied, which has had no other effect than to form a compound out of a simple fracture, by forcing the end of the bone through the integuments.

FRACTURES OF THE HUMERUS may occur at the extremities of the bone, at its middle, or above the insertion of the pectoralis major muscle, the last being inaccurately denominated a fracture of the neck of the humerus. The fractures may likewise be transverse or oblique, according to the mode in which the injury has been received.

Fracture of the head or neck of the Humerus. Our readers are aware that a distinction is made between the anatomical and surgical neck of this bone; the fracture of which we are now treating occurs in the surgical neck, or all that part of the humerus between the tuberosities of the bone, and the insertions of the pectoralis and latissimus dorsi muscles. Where a fracture takes place in the anatomical neck of the bone, or that circular depression separating the head of the humerus from its tuberosities, it is either, in very young persons, exactly at the junctio

of the epiphysis, where the cartilage is situated, or, in very old persons, in whom an interstitial absorption is going on, in that portion of the osseous system. The fracture of the surgical neck is generally produced either by a heavy fall or blow; an acute pain is experienced at the time of the accident; there is a sudden inability to move the limb, and although it readily yields to the attempts of the surgeon, it is at the expense of severe suffering; the upper end of the main portion of the humerus sinks into the axilla, and the deltoid muscle is drawn down by it, so that the roundness of the shoulder is diminished. It has sometimes been mistaken for dislocation, but from which, and likewise from other fractures of the humerus, we can easily distinguish it by the following diagnostic marks.—“If we embrace the head of the bone with the fingers, fix it, and rotate the arm at the elbow, it will be found that the head does not obey the rotatory motion, whilst upon farther examination a crepitus is perceptible; in the few rare instances in which displacement does not occur, the diagnosis is more difficult; still, the want of motion of the head of the bone during a rotation of the elbow is the surest guide in deciding upon the nature of the injury.”

“The treatment consists in applying a roller from the elbow to the shoulder joint, in placing a splint on the inner, and another on the outer side of the arm, and in confining these by means of a roller. A cushion is placed in the axilla, to throw out the head of the bone, and the arm is to be gently supported by a sling, taking care that it be not too much raised, or the bones will overlap, and the union be deformed.”

Fracture of the middle of the Humerus is an accident of frequent occurrence; when it is transverse, but little displacement ensues, as the brachialis internus and triceps muscles, attached anteriorly and posteriorly to both fragments, retain them in their situation in counteracting one another; but when the fracture is oblique, a considerable displacement is always apparent, the inferior portion being drawn upwards and gliding on the superior fragment. The treatment is very simple, and consists in extension of the arm when displacement is present, and the application of soap plaster, surrounding the limb in the situation of the accident. The arm should then be bent at the elbow, and a roller applied round it; an external splint lined with a soft pad, extending from the acromion to the outer condyle, and an internal one, also guarded by a pad, reaching from the margins of the axilla to a little below the inner condyle, should then be adapted to the arm, which, supported by a sling, may be thus confined for three or four weeks, when union will have taken place.

Fractures above the condyles of the Humerus are occasioned by a fall or severe blow upon the elbow joint, and are usually either longitudinal or oblique; when the injury is longitudinal, the two condyles are sepa-

rated from each other by a division which extends more or less upwards, and is bounded by another oblique or transverse fracture, occupying the whole thickness of the bone. In such a case the deformity is considerable, and the fractured part very moveable; if pressure be made either before or behind on the track of the longitudinal fracture, the two condyles become farther removed from each other, leaving a fissure between them, and a distinct crepitus is perceived by taking hold of and moving them in different directions. The fore-arm is nearly always in a state of pronation, an acute pain attends the extension or flexion of the arm, and more or less tumefaction, according to the violence of the accident, prevails in the parts.

When the condyles are obliquely broken off just above the joint, the appearances are very similar to those produced by a dislocation of the radius and ulna backwards, from which, however, it may be distinguished by all the marks of dislocation being removed by extension, and re-occurring when it is discontinued, and also by the crepitus which is perceived just above the joint, on rotating the elbow. The accident occurs at all periods of life, but much more frequently in children than in others.

The treatment for both these injuries is the same, and consists in “bending the arm, drawing it forwards to effect a replacement, and then applying a roller. The best splint is one formed at right angles, the upper portion placed behind the upper arm, and the lower portion under the fore-arm; a short splint should also be placed upon the fore part of the upper arm, both being retained in their situations by straps. Evaporating lotions should be employed, and the limb carefully supported in its bent position by a sling. In a fortnight or three weeks, according to the age of the patient, passive motion may be commenced, in order to guard against ankylosis. With all the care of the surgeon, it too frequently happens that a considerable loss of motion is experienced, and sometimes much deformity.”

Fracture of the internal condyle of the Humerus. “This portion of bone is frequently broken off obliquely, when the ulna projects forwards from its support being lost. If the fore-arm be extended, the hand becomes twisted inwards towards the side, an appearance which is removed by flexion; a crepitus is perceived on bending and extending the arm.”

The treatment of this fracture should be precisely the same as that recommended for the oblique fracture above the condyle, and where passive motion is early employed, a perfect use of the arm is regained.

Fracture of the external condyle of the Humerus is readily detected by the swelling, and pain on pressure, at the situation of the injury; the motions of the joint, both of flexion and extension, are performed with

great pain, and a crepitus is produced by the rotatory motion of the hand and radius, which is the principal diagnostic sign. If the fractured portion of the condyle be large, it is drawn a little backwards, which is not the case if only a small part of the bone be broken off. In two specimens of this fracture, one oblique and the other transverse, in the museum of St. Thomas's Hospital, the union is merely ligamentous, which is the only mode in which divided portions of the condyle unite, when the whole extent of the fracture is within the capsular ligament. This accident also happens more frequently to children than adults, and requires the following *treatment*. Apply a roller around the elbow, and above and below the joint, previously to the adaptation of an angular splint, which should admit the elbow, extending behind the upper arm, and receiving the fore-arm so as to support it; the whole may be then firmly bound over with a second roller, and the arm supported by a sling. For the child, the splint may be made of stiff pasteboard, bent to the shape of the elbow, dipping it into hot water, and applying it wet, so that it may assume the exact shape of the arm. In three weeks passive motion may be begun, increasing it very gently.

FRACTURES OF THE FORE-ARM may take place in several situations, and under a variety of circumstances; at the extremities of one or both bones, or in their middles; from falls upon the elbow, when the joint is bent, or by the action of the triceps muscle, when a sudden and severe exertion is made during the flexed position of the arm; they may also be either transverse or oblique.

Fracture of the Olecranon is nearly always occasioned by the application of direct violence, although it may be produced by the action of the muscles. The symptoms are very evident, and scarcely admit the possibility of a mistake. "Pain is felt at the back of the elbow, and a soft swelling is soon produced, through which the finger readily sinks into the joint; the olecranon can be felt in a detached piece, elevated from half an inch to two inches above the portion of the ulna from which it has been broken; this elevated fragment can be readily moved from side to side, but is drawn downwards with great difficulty, and if the arm be bent, the separation between the ulna and olecranon becomes wider. The power of extending the limb is nearly lost, and each attempt occasions severe suffering, but it may be bent with facility, and if the arm be undisturbed, it is prone to remain in the semi-flexed position. The inflammation is usually great, with ecchymosis, and there is a larger effusion of fluid into the joint than natural. No crepitus can be detected, unless the separation of the bones be extremely slight. It has been already observed, in treating of the fracture of the head of the femur within the capsule, that this bone, when fractured, unites merely by ligamentous matter; even this is often incomplete, the band

of union having frequently one or more apertures. The arm is weakened in proportion to the length of this ligamentous band, for if it be very long, extension of the arm is rendered difficult, from the necessarily diminished power of the triceps muscle.

Treatment.—This is the only injury of the elbow joint which requires the straight position; where the swelling is considerable, it is prudent to apply evaporating lotions and leeches for two or three days before the bandages and splints are adapted to the limb; where the violence has not been extensive, no time should be lost in the arrangement of the fracture. “The principle of the treatment is, first, to preserve the power of the limb, by making the separation of the bones as slight as possible, and consequently to shorten their ligamentous union, and secondly, to restore the natural motions of the joint, for this purpose, the arm should be placed in a straight position, when the surgeon presses down the upper portion of the fractured olecranon, until he bring it in contact with the ulna; a piece of linen is then laid longitudinally on each side of the joint, a wetted roller applied above, and another below the elbow; the extremities of the men are then to be doubled down over the rollers and tightly tied, so as to approximate them; a splint, well padded, should now be placed upon the fore part of the arm to keep it extended, confining it with a circular bandage.” The whole may be frequently wet with a spirit lotion, for the first few days, and the limb then allowed to remain perfectly quiet for a month, after which time passive motion may be attempted, but with the greatest gentleness.

Fracture of the coronoid process of the Ulna is a rare accident; but one example having occurred in the practice of Sir A. Cooper, in the living subject. It is distinguished by the projection of the ulna backwards, when the arm is extended, and the disappearance of the deformity when the arm is drawn forwards, and the elbow bent, which can be accomplished without much difficulty. Sir Astley Cooper is doubtful “whether any mode of *treatment* can completely succeed, as the coronoid process, like the head of the thigh bone, loses its ossific nourishment, and has only a ligamentous support. It is however proper to keep the arm steadily in the bent position, for three weeks after the injury, to make the union by ligament as short as possible.”

Fracture of the neck of the Radius has been described by some surgeons as of frequent occurrence, but as the experience of the largest hospitals in Europe, and the most eminent practitioners, Sir A. Cooper among the rest, hardly furnish an instance of the accident, it is probable that it has been confounded with some other fracture. If it did occur, it might be recognized by fixing the external condyle of the humerus, and rotating the radius, when a crepitus would be detected. The treat-

would be similar to that required in the fracture of the external condyle.

Fractures of both bones of the Fore-arm are not uncommon at the middle and lower portions of the radius and ulna, but are rare in the upper part of the fore-arm, where the numerous muscles, and the thickness of the ulna, are sufficient to resist the causes that occasion fracture in other situations; both bones are usually broken in the same line, but in some instances, a fracture may occur in two different directions, or even extend to several portions of one or both bones, circumstances which are well exemplified in the practice of Desault. These accidents are usually the result of direct external violence, but they are sometimes produced by a counter-stroke, as when the patient falls upon his hands; when this is the case, we usually find that the radius alone is broken, as that bone from its broad articular surface has to sustain the greater force of the blow. The diagnosis of these accidents is not difficult; we discover motion at a part of the limb where it did not previously exist, crepitus, and sometimes an evident depression in the situation of the fracture; the patient complains of pain on motion, the powers of pronation and supination are lost, and the arm is retained in a half bent position. When the fracture occurs near the wrist, the distinguishing characters are less evident, and have been sometimes mistaken for those of dislocation, but an attention to the situation of the styloid processes, whether they are above or below the deformity, will remove all difficulty in the diagnosis. A displacement of the fragments in a longitudinal direction is very rare, from the connexion of the two bones by the interosseous ligament, but where the injury is transverse, a considerable displacement is occasioned, by the four pieces approaching each other, either diminishing or obliterating the interosseous space, and producing great deformity.

Treatment.—The fore-arm should be bent to a right angle with the body, and the hand placed in a position between pronation and supination; extension should now be made, from the four fingers of the patient, while the humerus is steadily fixed by an assistant, and a moderate degree of pressure made upon the anterior and posterior sides of the arm, so as to push the soft parts into the interosseous space, thereby separating the bones. Two longitudinal and graduated compresses, proportioned in depth to the thickness of the arm, and increasing as the diameter of the limb diminishes, should now be applied anteriorly and posteriorly, confined by a roller which is carried round the fractured part, passed on the hand between the thumb and fore-finger, and reflected where the inequality of the arm requires its support. Two splints, applied over the compresses, should then be laid on, over which the remainder of the bandage is brought and secured, finally supporting

the arm in a sling. The compresses and splints should be of the same length as the fore-arm, and the utmost attention be directed to preserve the interosseous space, for if this be obliterated, the radius can no longer rotate on the ulna, nor the motions of pronation and supination be performed. The bandage may be renewed every week, ascertaining at the same time that the bones are properly separated.

Fractures of the Radius are the most frequent of those of the fore-arm, from this bone being the sole support of the hand, and on a level with the humerus; occurring transverse or oblique, they may be occasioned either by a fall or blow upon the fore-arm, or by a fall on the palm of the hand, which is perhaps the most common mode of its production.

The *symptoms* are, considerable pain in the injured part, a difficulty of pronation or supination, and the detection of a crepitus when either motion is attempted, and a mobility of the fractured portions. Should the injury occur near the head of the bone, the diagnosis will be more difficult, from the depth of the soft parts; in such a case, the thumb should be placed under the external condyle of the humerus and the extremity of the radius, bringing the hand at the same time into the positions of pronation and supination alternately; if in such a trial, the head of the bone remain motionless, there can be no doubt of its fracture. In the dislocation of the ulna forwards, the radius is frequently broken about an inch from the articulation, (see *Dislocations of the Ulna*.) when the hand is thrown back upon the fore-arm, the fractured extremity of the radius being readily detected under the flexor tendons of the hand.

Treatment.—The simple fractures of the radius, without dislocation of the ulna, require little or no extension. The elbow should be bent, and the hand placed in a state between pronation and supination, the palm of the hand facing the patient's breast. Having adjusted the fractured portions, the soap plaster should be applied, and over that a slack roller. All tight bandaging is manifestly improper, from its tendency to press the radius and ulna together, to the injury of the future motion of the arm, as well as to promote an uneven union of the fracture. Two splints, well padded, should then be adapted, the one along the inside and the other on the outside of the fore-arm. The hand should be inclined to the ulnar side of the fore-arm, and the fingers not confined too much by the splints, as, from a long continued extension, their use may be seriously impaired.

Fractures of the Ulna are comparatively rare; they take place generally at the lower extremity of the bone, where it is the most slender, and the least covered. The injury is the result of a force acting immediately upon the part, as when the internal side of the fore-arm strikes

against a hard resisting body. The fracture is easily ascertained by applying the hand to the inside of the fore-arm, when a depression is perceived, in consequence of the inferior portion of the ulna being drawn towards the radius by the pronator radii quadratus muscle, the superior portion of the bone remaining unmoved.

The *treatment* consists in making that slight degree of extension, which will incline the arm to the radial side of the fore-arm, at the same time pressing the muscles between the two bones so as to separate them; the same apparatus, as required in fractures of the radius, may be applied in this accident, and the arm supported in a sling.

Fractures of the Carpal and Metacarpal Bones, and the Phalanges of the Fingers. Simple fractures of these parts are not common, the accidents to which they are liable being of a severe description, and generally mangle or crushing the soft parts, as well as the bones. The metacarpal bones of the little finger and thumb are more frequently broken than those of the other three fingers, and usually by the operation of direct violence.

The *treatment* of these injuries, consists in keeping the adjacent parts perfectly motionless, by placing the hand open, upon a flat splint or hand board, betwixt which and the palm, a pad may be introduced; a roller should then be applied, and the hand and fore-arm kept at rest in a sling.

In some instances, the head of the metacarpal bone is broken off, giving the appearance of dislocation of the finger, as the head of the bone sinks towards the palm of the hand. This accident may be treated by placing a large ball in the hand, which is bound over it by a roller, thus restoring and confining the depressed extremity of the bone to its natural position.

In fractures of the phalanges of the fingers, soap plaster should be applied in the situation of the injury, afterwards incasing it in longitudinal pieces of thick pasteboard, fastened with tape, and placing the fore-arm and hand on a flat splint, supporting both with a sling.

COMPOUND FRACTURES are those injuries where a fracture of the bone is combined with a wound of the integuments, caused either by a protrusion of the fragments of the end of a broken limb, or by the violence of a blow which has occasioned fracture, through a wound of the soft parts. This class of accidents is perhaps the most important that comes under the notice of the surgeon, requiring a prompt decision in the treatment, either in an attempt to save, or in a determination to amputate the limb. When the muscles are so seriously injured, as to forbid all rational expectation of the system being able to endure the state of inflammation that will assuredly follow, when the bone itself is so comminuted that no attempt can be made to replace the fragments,

when the injury has extended to a joint, or when the blood-vessels, and especially the principal arterial trunks, are lacerated, so that the circulation cannot be continued to the extent necessary for the safety of the parts, but little opportunity is left the surgeon to choose between a removal or an attempt at preservation of the limb. In the one instance, the sooner he amputates the better, before an inflammatory and gangrenous tendency in the limb has had time to form; in the other his object is to lessen the danger by converting the injury as speedily as possible, from the state of a compound to that of a simple fracture, by an union of the wound of the integuments. But notwithstanding the determination to preserve the limb if practicable, the danger may be as imminent as before, and as forcibly demanding amputation as the worst case in the first instance; after the subsidence of the primary inflammatory symptoms, and when the suppurative stage is fairly established, the constitution may become incapable of bearing the great irritation and immense discharge from the wound, and hectic fever appear to close existence, unless its cause be removed; here, then, amputation is our only resource, nor must it be delayed too long, when the powers of life have sustained so fearful a blow. When it is intended to attempt the preservation of the limb, the first object is the return of the protruded fragments, in those cases where they have appeared beyond the external wound. In a compound fracture of the leg or thigh, it is always the upper part of the broken bone that is thrust forth, and if the fracture be transverse, and the wound large, a moderate degree of extension will effect its reduction. The position in which a limb is placed during treatment, is of the utmost importance; it frequently happens, that where a fracture is oblique, a sharp point of bone will make its way through a wound, just long enough to permit its protrusion, and if we now place the limb in a straight position for the purpose of extension, we oblige the wound to gird the bone tight, and make the exposed part press upon the surface beneath it. The old method of accomplishing reduction in such a case, was to saw off the obtruded portion, and it is even now adopted by the best surgeons in many instances, and especially when the point of bone is small and very sharp. In the majority of instances, however, the better plan is to enlarge the wound, and change the position of the limb; the latter will alone frequently effect the desired object by moderately bending it, and thereby relaxing the muscles, and at all events it will facilitate the return of the bone, after the enlargement of the orifice. Should the bone be broken into many small fragments, which are either detached, or so loosened as to render their union impossible, they should be removed with the greatest gentleness, and as little interference as possible. Replacement of the bone having been accomplished, the sides of the wound may be approximated

by two or three slips of adhesive plaster, not forcibly drawing the edges together, nor making any considerable pressure upon the limb. However skilfully this plan may have been carried into effect, union by the first intention rarely ensues; the degree of violence, in nearly every case, is sufficient to excite a high degree of inflammation, which prevents a ready union, and induces the process of suppuration; where however an union does take place, the case has become subject to the rules of treatment required in simple fracture, and may be arranged with the splints and rollers, in the position described when treating of such an injury. Should the wound advance to suppuration, a proper opening should be maintained for the free discharge of sloughs, matter, or any fragments of bone, the dressings should be of the lightest description, and perhaps soft dry lint, laid on so lightly as just to absorb the sanies, and not to touch the edges of the wound, is the best application; this may be covered with a pledget smeared with any mild digestive ointment. If the discharge be small, one dressing in the twenty-four hours will be sufficient, but if large, the dressings must be removed twice or even three times in the day. The common roller should never be applied in a case of compound fracture; the many-tailed bandage being preferable, not only on account of the ease with which a soiled portion can be removed, but from the ability afforded of dressing the limb without disturbing its position. The antiphlogistic treatment, venesection, and discutient lotions to the surrounding parts, are required during the prevalence of the inflammatory symptoms, which are always more severe in large cities than in the country, a fact sufficient to justify the recommendation of a removal of the patient to a pure air, should his residence be among a crowded population. When the discharge is very copious, and the health appears to suffer therefrom, it will be prudent to make such additions to the diet as the system demands; light nourishing food, and a small quantity of wine, may be reasonably allowed, always guarding against too great a liberality on the part of friends.

In all bad compound fractures of the lower extremity, the bed constructed on the principles advanced by Mr. Earle for the treatment of such accidents, is of great advantage, as an exact posture can be steadily maintained, and, what is of equal consequence, the bowels evacuated without the least disturbance of the fracture.

On the Treatment of False Joints after Fracture.

“When several months have elapsed after fracture, without any union of the bone, and there is reason to apprehend an artificial joint, surgical writers agree with Celsus, in recommending the ends of the broken part to be firmly rubbed against each other, with the view of making them inflame and grow together. On the same principle, some surgeons have

allowed their patients, with broken legs or thighs, confined in splints, to get up and walk about. As soon as the necessary irritation is produced, the limb is to be kept motionless a sufficient length of time.

"If such plans fail, it has been proposed to cut down to the broken part, and rasp or saw off the ends of the bone, and then treat the case like a recent compound fracture. The latter operation was first devised, and practised with success, by Mr. C. White, of Manchester, in an example in which the humerus could not be united by ordinary methods; and scraping the fracture was successfully performed by the same gentleman for the cure of an old fracture of the tibia. The operation of sawing off the ends of a fractured humerus has been practised without success, in St. Bartholomew's Hospital, but after an operation of this kind performed in France, the patient died on the sixth day. On the other hand, Mr. White's cases are highly favourable to the practice. Mr. Rowlands, of Chester, and other surgeons, have likewise found the operation answer. The latter gentleman performed it on the thigh bone, by cutting down to the fracture between the rectus and vastus externus muscles, and placing a strong plate of tin under the ends of the bone, when the saw was used. It was found necessary to make a transverse incision through a great part of the vastus, in order to facilitate the removal of the lower end of the fractured part; but though Mr. Rowlands succeeded in his objects, the case was attended by such difficulties, that he expresses himself to be undecided concerning the propriety of advising the operation to be undertaken by others.

"Dr. Physick's practice consists in making the ends of the bone inflame and suppurate, by the introduction of a seton through the fracture, and then applying splints. He thus succeeded in consolidating a disunited humerus. This plan, which is considered milder and safer than turning out the ends of the fracture, and sawing them off, has been followed in London, with various degrees of success, by Mr. Brodie, Mr. C. Bell, Mr. Wardrop, &c."—(*Cooper*.)

The principal works on fractures to which the reader may be referred, are the following: Pott's Remarks on Fractures and Dislocation; White's Cases in Surgery; Boyer's *Traité des Mal. Chir.*, tom. 3.; *Œuvres Chir. de Desault* par Bichat; Roux's *Parallèle de la Chirurgie Angloise avec la Chirurgie François*; Sir A. Cooper's *Treatise on Fractures and Dislocations*; S. Cooper's *Surgical Dictionary*, and a letter of Sir James Earle, containing "Some Observations on the fractures of the lower limbs, with an account of a contrivance to administer cleanliness and comfort to persons confined in bed from accidents or other causes."

FRÆNUM LINGUÆ, *division of*. See *Tongue*.

FRAGILITAS OSSIUM. *Brittleness of the Bones.* See *Bones*, diseases of.

FRAMBÆSIA, (from *framboise*, French, a raspberry.) *The Yaws.* See *Cutaneous diseases*.

FROST, effects of. See *Asphyxia*.

FUMIGATION, (from *fumus*, smoke.) A process employed in medicine for the destruction of miasmata or effluvia, and for the correction of the close and fetid air in the apartments of the sick.

The usual fumigations were formerly those prepared by the action of the nitric and muriatic acids; in order to prepare the nitric acid gas, half an ounce of the nitrate of potass, finely powdered, should be placed in a shallow vessel, and heated over a lamp, or in a sand bath; two drachms of sulphuric acid should then be poured over the salt, when sufficient gas is set at liberty to fumigate a cube of ten feet. To obtain muriatic acid gas, one pound of common salt should be placed in an earthen vessel, over which a sufficient quantity of sulphuric acid to moisten it should be poured; on the application of heat, the gas will be extricated. Of late years the use of chlorine as a fumigator has met with an extensive and very successful trial. It is prepared by taking three parts of common salt, one of black oxide of manganese, and rather less than three of strong sulphuric acid.

We have abundant evidence to prove the value of this medical agent; Geylon Morvean, in his treatise on fumigation, after alluding to the inefficiency of staying the progress of the yellow fever at Genoa and Cadiz in 1800, expressly states, that at Seville, when the disease had appeared, fumigations of acid gases were employed with the greatest success. Vicq d' Azyr relates the benefit of the same practice, as pursued in the south of France in 1774, during "the putrid and pestilential malady" that then raged. In addition to these and many other authorities, the principle received full confirmation by the experiments of Mr. Faraday, in the Penitentiary, at Milbank, near London, where in the low typhus fever, the use of chlorine as a disinfecter, was attended with the most favourable results.

With respect to chlorine, it may be added, that as it is by pressure condensable into a liquid, tubes containing a small quantity of it, and hermetically sealed, might be very usefully employed, as by breaking off the extremity of the tube, the chlorine would instantly assume the gaseous state, and diffuse itself through the apartment.

FUNGUS. This term is applied to a sponge-like excrescence formed by excessive granulation on the surface of an ulcer, which, in general, is easily removed by the use of escharotics. In pathology, a fungus is understood to consist in a disease of structure, in which a part becomes soft, enlarged, and excrescent. Dr. Baillie describes this formation as

even existing on the inside of the pharynx, and the upper end of the œsophagus, and which on being removed after death, was found to possess a fibrous structure ; the same author likewise relates instances of fungous excrescences arising from the mucous surface of the bladder.

Fungus of the Dura Mater. See *Head*, diseases of.

FUNGUS HÆMATODES. (Fungus, and *apla*, blood.) This malignant, and, generally speaking, fatal disease, was at one time confounded with cancer ; the researches, however, of Hey, Burns, Freer, Langstaff, Baillic, and Wardrop, have proved the distinction, and rendered us acquainted both with the general nature and peculiarities of the disease. The structure of the hæmatoid tumour is generally medullary, although some instances are met with, when the diseased mass is composed of a variety of different portions, some distinctly insulated by cellular capsules, and all differing in size, colour and consistence ; some of a firm structure, cartilaginous, whilst in others, ossific or earthy particles are intermingled with the pulpy matter. In the majority of these tumours, there are distinctly insulated parts, resembling the yolk of an egg, and from the frequency of this appearance, Dr. Baillie is of opinion that it forms one of the general characters of the disease. This morbid growth, when divided, appears to be composed of an opaque, whitish, homogeneous substance, which has been compared to the cerebral pulp, —and when the softer parts are washed away, a loose filamentous texture, resembling cellular membrane, remains ; the colour of the mass is subject to variety, being sometimes exactly that of the brain, and at others of a red or fleshy appearance, and in some cases a portion of the same tumour will resemble a mass of clotted blood.

When fungus hæmatodes appears in the form of a tumour, covered by the integuments, it is remarkable for the equality and smoothness of its surface, its softness and elasticity, for communicating to the touch a sense of fluctuation, and for the want of discolouration of the surface. As the tumour advances in growth, some portions become disorganized ; usually in the centre of the mass, openings form, from which a fetid, thin, and bloody matter issues ; no regular ulcerative process follows, but in its stead, a fungus shoots forth, and the tumour seems to increase rapidly in bulk. The fungus, instead of possessing the firmness of cancer, is soft and easily torn, bleeding profusely upon the slightest injury, of a dark purple colour and irregular shape. The tumour continuing to increase in size, the neighbouring glands become affected, and exhibit the same phenomena, when, if life be not destroyed by frequent hæmorrhage, it soon sinks beneath a rapid hectic.

Such are the general characters of fungus hæmatodes when it prevails as a tumour beneath the integuments ; if it occur either in perito-

neal or thoracic cavities, it runs a similar course; the peritoneum or pleura finally giving way.

When it attacks *the eye*, the retina is usually the first to suffer, and the primary symptoms are observed in the posterior chamber, an appearance like that of polished iron presenting itself at the bottom of the organ. The pupil becomes dilated and immoveable, and of a dark amber or greenish hue; this alteration in the appearance of the eye, is at length discovered to be occasioned by a solid, rugged, and unequal substance, proceeding gradually towards the cornea. The eye-ball now loses its natural figure, and becomes irregular and knobby; the sclerotica assumes a deep blue or a livid hue, the cornea ulcerates from pressure, and a fungus shoots out, in some few instances advancing through the sclerotica, having the conjunctiva as its sole covering. The surface of the excrescence is unequal, and bleeds profusely upon the slightest injury, and when very large, the prominent parts slough away, attended with a fetid sanious discharge. The parotid and absorbent glands under the jaw become diseased, and the patient sinks from hectic. In this affection the retina is destroyed, the choroid coat propelled forward and disorganized, and the optic nerve rendered thicker and harder than natural, of a brownish ash colour, and destitute of its usual tubular appearance. Mr. Wardrop alludes to cases in which this nerve has been discovered split into two or more pieces, the interspaces being occupied by the substance of the tumour: even these evils do not include the extent of the mischief, the optic ganglion, the tractus opticus and thalamus, and even the substance of the brain, have been found implicated. When fungus hæmatodes attacks *the testicle*, it commences sometimes in the glandular part, and sometimes in the epididymis; its progress is slow, the pain not severe, nor is there in the first stage any hardness or inequality of the part. As the disease advances, the testicle increases in size, becomes soft and elastic, as though it contained fluid, which has led to the error of mistaking it for hydrocele and puncturing it with a trochar. A little attention to the nature and progress of the two diseases, will, however, relieve us from any doubt; the hydrocele may be known by the water beginning to collect at the bottom of the scrotum, then ascending towards the spermatic cord, and by the swelling being circumscribed towards the abdominal ring; whereas the fungus hæmatodes begins with a gradual enlargement of the testicle itself, followed by a fulness which extends up the spermatic cord; besides, it is not in the slightest degree diaphanous, and is much heavier than a similar bulk of water.—(Earle.) After the testicle has become enlarged, abscesses soon form, and the scrotum ulcerates, but in this situation no fungus protrudes. The inguinal glands become diseased, acquire an immense size, and the skin bursting, large portions of

down sough away. The structure of the diseased testicle is changed to a medullary or pulpy appearance, and generally of a pale brownish colour. In most cases the tunica vaginalis, and the tunica albuginea, are adherent.

Fungus hæmatodes, like other specific diseases, only attacks particular organs in its primary form, and not only has it affected the extremities and the trunk, the eye and the testicle, but likewise the liver, pancreas, spleen, lungs, uterus and ovaria; hæmatoid tumours have also been observed in the alimentary canal and urinary bladder, in the brain, the bones, the mesentery, the omentum, and in the thyroid gland. In whatever structure the disease appears, we generally find it restricted to the earlier periods of life; Bichat asserts that more than one third of the cases of Desault were under twelve years of age, and Mr. Wardrop reports twenty out of twenty-four cases as occurring in children under twelve years old. The fungus hæmatodes of the testicle is exceedingly rare amongst aged people, and the same may be said of the disease in other situations. Indeed the circumstance of its prevalence in the early part of life must be added to the characters we have described, in distinguishing in the primary stage between it and cancer, with which it has too frequently been confounded.

Treatment. There is perhaps no disease to which the system is liable, so little within the influence of remedies as the one under review; the only effort that can with any propriety be employed, is an early removal of the part affected, and even this is too frequently useless. When fungus hæmatodes attacks a cavity, we know of no means to prevent or even check the destruction of the patient; if it appear on the extremities we have sufficient proof that an extirpation of the diseased mass, or even amputation of the limb, will not always ensure the preservation of the sufferer, the parts surrounding the tumour or the stump, taking on the morbid action. In removing the eye, we shall in all probability find that the track of the optic nerve is concerned in the disease, and in the operation of castration our exertions may be fruitless, from the affection extending to the spermatic cord and within the cavity of the abdomen. There are undoubtedly some few cases of recovery after operation recorded, and these may perhaps be sufficient to encourage us to attempt a cure by the use of the knife. Whatever is done must be performed in the earliest stage of the disease, before neighbouring glands participate in it, and with the most scrupulous attention to take away every suspicious fibre. It must ever be recollected that fungus hæmatodes is a constitutional malady, and although we may relieve one region of the body from it, we are not sure that it is not proceeding in another part, at the very moment of operation. The use of caustics is inadmissible, as only tending to irritate without destroying. Friction with anodyne bal-

has sometimes afforded a temporary relief in the early stages, but no permanent good is rendered by their employment.

See Key's Practical Observations; Wardrop on Fungus Hæmatodes; Eade, Lawrence, and Langstaff, in 3rd vol. of Med. and Chir. Trans.; Travers and Saunders on Diseases of the Eye; and Dr Baillie, in his works, edited by Wardrop.

GURUNCULUS (from *furo*, to rage.) *A Boil.* See *Boil.*

GALBANUM.—The gummy resinous juice obtained by exudation from, and incised into, the Bubon Galbanum, a Turkish and East Indian plant, of the class Pentandria, and order Diggynia;—employed internally as an antispasmodic, deobstruent, and expectorant, in cases of hysteria, chlorosis, &c., in doses of from gr. x. to ℥ss. in pills; and externally as a discutient to indolent ulcers.

Official preparations.—Compound galbanum pills, (Pills galbani compos.) Tincture of galbanum, (Tinctura galbani,) ℥j. to ℥ij. in flatulent colic, and chronic asthma. Assafoetida plaster, (Emp. assafoetida,)—Ani-spasmodic, anodyne. Compound galbanum plaster, (Emp. galbani comp.) Plaster of galbanum, (Emp. galbani;)—both, stimulant, suppurative, and digestive.

GALL NUTS, (*Galla.*)—Excreescences formed by the deposit of the eggs of the *cynips-quercus folii*, an insect of the fly kind, on the leaves and other tender parts of the oak, (*quercus cerris.*) The best galls are brought from Aleppo, and are heavy, knotted, and of a bluish colour; they are nearly soluble in water, with the assistance of heat. They are employed in medicine as a most powerful astringent and tonic, in diarrhoea, intestinal hæmorrhage, and occasionally in intermittents, in doses of from gr. x. to ℥i., twice or thrice a day. As a local remedy, the gall nut enters into gargles and injections; for the *blind* piles, an ointment composed of 2½ parts of finely powdered galls, a small portion of opium, with 3 parts of spermaceti ointment, offers a very valuable resource.

Incompatible with lime water, subcarbonate of potass, acetate of lead, sulphate of copper, nitrate of silver, sulphate of iron, tartrate of antimony, nitrate of mercury, infusion of bark, and solution of isinglass, all of which precipitate the infusion of galls.

The watery infusion is well known as a chemical agent, reddening vegetable blues. M. Bracconot has, of late years, discovered a new acid in the gall nut, independent of the gallic acid, in the crystalline precipitate, formed by exposing the infusion of galls to the air, which he terms *Fugac acid.*

GALL STONES. See *Calculi.*

GALVANISM,—So named from its discoverer, Galvani, a professor

at Bologna, is a power which gives rise to the same phenomena as electricity, though it is excited in a different manner; hence it has been generally considered as the same principle. It is sometimes called Voltaic electricity, from Volta, an Italian physician, who, by his scientific researches, led to the most important discoveries. Dr. Wilson Philip, in his *Experimental Inquiry into the Laws of the Vital Functions*, has satisfactorily proved that galvanism is capable of supplying, to a certain extent, the place of the nervous influence, so that, while under its effects, the stomach, otherwise inactive, digests food as usual; he has also demonstrated, that when the lungs are deprived of their nervous influence, by which their function is impeded, and when digestion is interrupted, these two vital functions are renewed by exposing them to the influence of a galvanic trough. The experiments of this eminent physician are entitled to great consideration, from the possibility of rendering this extraordinary power a useful agent in the practice of medicine. In cases of asphyxia, from drowning or suspension, it may become a question, how far we are justified in laying bare the phrenic nerve or the par vagum, for the purpose of applying a shock directly to the nervous chain, for the purpose of resuscitation.

GAMBOGE, (*Cambogia*),—A concrete vegetable gum, chiefly brought from Gambaja in the East Indies, the product of the *Stalagmitis Cambogioides*, a tree of the class Polygamia, and order Monœcia.—Cathartic, (drastic,) emetic, and hydragogue in operation; given in doses of from gr. ij. to gr. vj., in visceral obstructions and dropsy, generally in union with calomel or squill, or with the subcarbonate of potass as an anthelmintic.

Officinal preparation.—Compound pills of gamboge, (*Pilulæ cambogiæ compositiæ*.) *Dose*. gr. x. to ℥j.

GANGLION, from γανγλιον, a knot.) An encysted, circumscribed, and moveable swelling, formed upon tendons in different parts of the body, but most frequently upon the back of the hand and over the wrist; it seldom occasions any pain, or alteration in the colour of the integuments, and when pressed, possesses considerable elasticity. It is sometimes unpreceded by any accident or cause that might account for its production; in others, it is the result of a bruise or sprain. When opened, it is found filled with a viscid transparent fluid, resembling the white of an egg.

Treatment.—In an early stage, discutient lotions will frequently disperse the ganglion; friction with the oil of origanum has likewise been successful. Where these measures are inefficient, compression may be made upon the part with a piece of sheet lead confined by a bandage, using at the same time frictions with the above oil, or with the camphorated mercurial ointment: this latter practice, if persevered in, will ge-

nerally remove the swelling, but great attention will be required not to irritate the ganglion either by friction or pressure, which may convert a very simple affection into a most malignant fungous disease. Setons have been recommended by some authors, but experience proves that their use is attended with considerable danger from the irritation of the thread, and a malignant fungus may follow this practice. Ganglions have frequently been cured by a rupture of the cyst by a sudden blow with the fist or the back of a book; or the cyst of a recent ganglion may be broken by strong compression with the thumbs of the surgeon, with the intervention of a flat hard substance, as a piece of coin; the fluid, in these instances, is effused into the adjacent cellular membrane, and pressure being continued, the opposite sides of the cavity become united by the adhesive inflammation. When a ganglion resists all attempts at dispersion, and becomes so large as to interfere with the free motions of the limb upon which it is situated, the only resource left, is its extirpation, which is readily effected by making a longitudinal incision in the skin covering it, then separating the cyst on every side from the contiguous parts, and lastly, cutting every particle of it off the adjacent tendon or fascia; the greatest care must be taken in this operation, not to make any opening in the cyst, so as to let out its contents and permit its collapse, as the dissection is then rendered doubly tedious and difficult. The wound may be closed with sticking plaster, and a small compress applied over it, in order to facilitate the adhesion of the sides of the cavity. Should a ganglion burst or ulcerate with the removal of the cyst, the diseased skin must be included. The ganglions that appear just below the knee, and which are not uncommon among housemaids, from frequent kneeling in cleaning, are often relieved by the application of a small blister, afterwards kept open by the savine cerate.

See Warner's Cases in Surgery; Latta's System of Surgery; and Cooper's Surgical Dictionary.

GANGRENE, (from γὰρ γρᾶνα, from γρᾶω, to feed upon.)—Incipient mortification, so named from its eating away the flesh. See *Mortification*.

GARGLE, *Gargarisma*.—A class of remedies employed in affections of the pharynx, tonsils, and palate, they are of various kinds, as emollient, astringent, detergent, and tonic gargles.

GARLIC, *Allium*.—The name of a genus of plants, of the class Hexandria, and order Monogynia. The root sometimes employed in medicine as a stimulant, diuretic, and expectorant; in cold leucophlegmatic habits, in dropsy, rheumatism, asthma, and hysteria. *Dose*. One to four cloves may be swallowed twice or three times a-day. Of the juice, ʒss. to ʒij., mixed with syrup. In pills, combined with soap or calomel, gr. v. to ʒij. As an external application, it has been recommended in the

form of a poultice over the pubis, in cases of atony of the bladder; made up as an ointment with oil for herpetic eruptions; and in atonic deafness, the juice, dropped into the ear, has been found an useful remedy.

GASTRITIS, (from γαστήρ, the stomach.)—*Inflammation of the stomach.* See *Inflammation*.

GASTROCELE, (from γαστήρ, the stomach, and κήλη, a tumour.)—*Hernia of the stomach.* See *Hernia*.

GASTRODYNIA, (from γαστήρ, the stomach, and δύνη, pain.)—*Pain in the stomach.* One of the symptoms of *Dyspepsia*, which see.

GASTRORAPHY, (from γαστήρ, the stomach, and ραφή, a suture.)—*The sewing up of wounds in the abdomen.* See *Wounds*.

GENTIAN ROOT, *Gentiane radix*.—Obtained from the Gentiana Lutea, a plant of the class Pentandria, and order Digynia. The best gentian is imported from Switzerland and Germany; its virtues are extracted by water, and alcohol, proof spirit being its most perfect menstruum. In operation, tonic and stomachic, and of great service in dyspepsia, hysteria, and in all cases where a vegetable bitter is indicated. *Dose.* gr. x. to ℥j., in powder. *Official preparations*.—Infusion of gentian and Compound infusion of gentian, (Infusum gentiane et Infusum gentiane compositum,) ℥i. to ℥ii., twice or thrice a-day. Compound tincture of gentian, (Tinctura gentiane composita,) ℥i. to ℥iij., chiefly employed as an adjunct to stomachic infusions. Extract of gentian, (Extractum gentiane,) gr. x. to ℥ss., twice a-day, frequently used as a medium for giving the metallic oxides in the form of pills.

GERANI RADIX, *Cranesbill root*.—Procured from the Geranium maculatum, a plant of the class Monadelphica, and order Decandria. In operation, astringent. *Dose.* ℥i. to ℥j.

GEORIVALS RADIX, *Water avens root*.—From the Geum rivale, a plant of the class Icosandria, and order Polygynia.—Febrifuge, tonic, astringent; sometimes employed in intermittents, flatulent colic, and general debility; and also in chronic diarrhoea and dysentery. *Dose.* Of the powder, ℥ss. to ℥i., three times a-day; of an infusion, ℥i., every hour; of the tincture formed with the root, ℥i., and alcohol, one pint, ℥iij., occasionally.

GINGER ROOT, *Zingiberis radix*.—The root of the Zingiber officinale, a plant of the class Monandria, and order Monogynia, which produces what is called the black and the white ginger, the difference simply consisting in the mode of preparing each sort for the market.—Carminative, stimulant, sialagogue, and employed in cases of gout, flatulent colic, dyspepsia, and tympanitis: also as an adjunct to griping purgatives. *Dose.* gr. x. to ℥j. The virtues of this root are perhaps not sufficiently estimated; of the vegetable stimulants it is the best, and

should, whenever it is practicable, be preferred to all those spices, whose qualities depend upon the presence of an acrid oil. *Official preparations.*—The Syrup of ginger, (*Syrupus zingiberis*.) Tincture of ginger, (*Tinctura zingiberis*;) ℥i. to ℥iij. of each, to answer the same purposes as the root.

GLAUCOMA, (from γλαυκος, blue,) the eye in this disease becoming of a blue or sea-green colour.—An opacity of the vitreous humour. See *Eye*, Diseases of.

GLEET.—By this term is understood a continued running or discharge from the urethra after gonorrhœa, from which it differs in not being infectious, and in the discharge consisting of globules mixed with mucus, instead of serum. It is usually kept up from debility and relaxation of the urethra, and for the most part, appears in weak habits. Mr. Hunter suspected that in some instances, it was connected with scrophule, and added as a confirmation, that the *sea-bath* cures more gleet than any other mode of bathing, at the same time presenting one of the most valuable remedies for the former disease; it may also be symptomatic of stricture, which is nearly always accompanied by a discharge, and likewise with diseases of the prostate gland.

Treatment.—Where a gleet, as will sometimes happen, is not the consequence of recent gonorrhœa, the existence of a stricture, or a disease of the prostate, may be suspected, when proper means must be adopted for dilatation or relief; where it is the sequel to gonorrhœa, stimulating injections may be employed with advantage, such as diluted sea water, or two grains of the oxy-muriate of mercury in eight ounces of distilled water, which should be continued some days after the disappearance of the discharge, in order to prevent a recurrence. Internal stimulants may likewise be administered, and particularly the balsam of capivi, or the tincture of cantharides in small doses. In weak habits, preparations of bark and steel are advisable, adding a moderate allowance of wine, and generous nourishment, to the usual diet. In gleet, symptomatic of a stricture, the bougie, of course, offers the means of cure.

A *purulent ichorous discharge* sometimes takes place around the corona glandis, attended with swelling and inflammation both of that and the prepuce, caused by a morbid secretion of the glandulæ odoriferæ. It readily yields to cooling purges, cold washes, poultices, and frequent injections of a solution of lead under the prepuce, which should be kept separated from the penis by a fold of lint, frequently moistened with the lotion.

Gleets in women are readily cured, by injections into the vagina, made a little stronger than those required for men; the turpentine class of medicines exert no specific influence on the vagina. See *Hunter on the Venereal Disease*.

GOITRE. See *Bronchocle*.

GOLD, *Aurum*. See *Metals*.

GONORRHEA. (from *γονη* the semen, and *ρηναι*, to flow; from the ancient supposition that it consisted in a seminal flux.) *The Clap*. Dr. Cullen describes this disease as "a preternatural discharge from the urethra of males, with or without libidinous desires," and describes it under the four heads of G. benigna, G. syphilitica, G. libidinosa, and G. dormientum. A gonorrhœal discharge may likewise flow from the vagina of the female. It has been a subject of much discussion, how far this affection may be regarded as connected with the venereal disease, and whether it may ever be considered as independent of it. In conformity with the arrangement of this work, in which the diseases of the various regions are classed together, as nearly as is consistent with clearness, we refer the reader to the Article on the *Venereal disease*, for a particular description of gonorrhœa, and the distinctive marks of its varieties.

GOUT. *Podagra*, (from *πους*, the foot, and *αγρα*, a seizure.) *Arthritis*, (from *αρθρον*, a joint.) These names have been applied to this disease, from the attack commencing in the joints, and more particularly in those of the great toe. Dr. Cullen describes four species, *P. regularis*, *P. atonica*, *P. retrograda*, *P. aberrans*.

1. *Podagra regularis*, or *regular gout*, is usually preceded, though not invariably, by what are called the premonitory symptoms, which continue for some days, as dyspepsia, lassitude, coldness and numbness of the limbs, with a sense of pricking, cramps, and in some cases a varicose state of the veins of the legs. At length, the paroxysm comes on about two in the morning, with excruciating pains in some one of the smaller articulations, generally at the great toe, attended with fever, throbbing, and inflammation. Towards morning the patient falls asleep, a gentle perspiration breaks out, and the paroxysm terminates, when the part is found much swelled, inflamed, and the patient unable to bear the least weight on it, or the slightest motion without excessive pain. The next night renews his sufferings, and he has a repetition of the same paroxysm, in the same manner. This is continued night after night until the attack finally subsides either by a profuse sweat, discharge of urine, or other evacuation. Chalky concretions sometimes form in the joints affected, particularly the fingers, greatly impeding their motion, and sometimes forming an opening in the skin, from which chalky matter issues in large quantities.

2. *In the podagra atonica*, a gouty diathesis prevails, yet no inflammatory affection of the joints takes place. In such cases, the stomach is often affected with flatulence, acidity, oppression, and other dyspeptic symptoms: in other instances, the head is affected with pain, giddiness,

apoplectic symptoms, &c. ; in others the thoracic viscera with palpitation, asthmatic symptoms, &c.

3. *The podagra retrograda*, or *the retrocedent gout*, after a violent paroxysm of regular gout, suddenly leaves the joints, and falls on some internal part, producing all the symptoms of the atonic species, in a most violent degree, often producing death in a very short time.

4. *Podagra aberrans*, or, *misplaced gout*, instead of attacking the extremities, occasions an inflammatory affection of some vital organ, producing the same symptoms which attend the inflammation of such part from other causes.

Gout in all its forms is a disease of the system, or, in other words, is dependent upon a peculiar condition of the constitution ; the diathesis is, in some cases, original, but in the larger number of instances, hereditary, and is especially called into action by habits of idleness, luxury, or indulgence in sensual pursuits. The disease when experienced, by individuals whose lives would not permit intemperance of any nature to be assigned as the cause, may undoubtedly be referred to hereditary disposition, needing nothing more than the application of cold, visceral irritation, or mental affection for its production. "Let the diathesis be once established, and it retains its hold in the system, and is propagated from one generation to another, whatsoever be the manner of life, or the general habits of the suffering individual, although the paroxysms will appear with more certainty, and with far more intensity in those, who indulge in the excesses that laid its first foundation."

The proximate cause of gout, has attracted the attention of many writers, who have favoured us with a number of ingenious conjectures, without however having advanced a single well authenticated fact. We may suppose, with Boerhaave, that it consists in a morbid texture of the nerves and capillaries ; with Hoffman, that it depends upon the presence of a tartaric salt in the fluids, or with others that a bilious salt, an acid, or an alkali prevails therein ; or we may follow the doctrine of Dr. Cullen, in presuming "that the proximate cause of a gouty diathesis is dependent upon a certain vigorous and plethoric state of the system : and that the proximate cause of a gouty paroxysm is produced by an occasional loss of tone in the extremities, often communicated to the whole system, but especially to the stomach, succeeded by a powerful re-action in the same quarter, which constitutes the pain and inflammation, and is an effort of the vis medicatrix naturæ to restore the tone thus injured." All these hypotheses, however, teach us nothing respecting the true pathology of this disease, which, to the present day, remains a subject of uncertainty, as far as its proximate cause is concerned.

Gout has been confounded with rheumatism, from which it may, how

ever, generally be distinguished by the suddenness of the attack; the part, likewise, recovers its health and strength in a surprisingly short period, and both the corporeal and mental systems acquire an agility and vigour unknown for some time previously.

A paroxysm of gout may return annually, or in two or three years, according to the circumstances under which it first appeared, and the system of the individual; when it has once become periodical, the intervals gradually become shorter, and the attacks more severe and of longer continuance, until at length, as Dr. Cullen observes, "the patient is hardly ever free from it, except for two or three months in the summer." In such inveterate cases, the evil is continued beyond the paroxysm, the joints remaining weak and stiff, and at length contracted and disabled; in addition to lameness, concretions of a chalky appearance begin to form on the outside of the joints, and generally immediately beneath the skin. These concretions, according to the analyses of Dr. Wollaston, "consist in a combination of lithic or uric acid with soda, forming a lithate or urate of soda; they occur principally about the joints of the toes and fingers in little nodules; but sometimes they appear about the larger joints, where they occasion a whitish swelling almost as large as an egg, which becomes gradually inflamed and red.

In the *atonic gout*, (*Podagra atonica*,) in which the constitutional symptoms are so evident, the disease displays itself by slight and irregular pains, which frequently alternate with a visceral derangement; still, the attack, however trivial it may be, usually commences in the part weakened and predisposed, as it were, by former paroxysms. This variety of the disease, attended with all the symptoms of indigestion, will rapidly wear out the system, and probably terminate in abdominal or cellular dropsy.

The *retrocedent gout*, (*Podagra retrograda*,) is distinguished by the seizure upon some organ that is less healthy than the rest, after an ordinary paroxysm has been experienced in an extremity; thus the stomach is, in this variety, the frequent object of attack, when a sensation of cold and weight is complained of; or the head, where the contrary symptom prevails, in a sense of heat and maddening pain, which soon yields to an oppressive horror and delirium. The bladder may be the organ to which the disease is transferred, when acute pain at the neck and strangury prevail, accompanied by an acrid mucous discharge from the urethra; or the rectum may become the seat of metastasis, evincing pain, spastic constriction, or hæmorrhoidal tumours. The attack is more rarely thrown upon the lungs, when the symptoms of pneumonia are occasioned.

The *misplaced gout*, (*Podagra aberrans*,) differs only from the prece-

Gout, in attacking the vital organs without a previous paroxysm in the extremities.

Treatment.—In the old belief, that a gouty paroxysm was an effort of nature to throw off some morbid matter that was accumulating in the system, it was no doubt the prudent course to allow it to run on to its termination without interruption; but the failure of this hypothesis in the present day, permits us not only to endeavour to subdue an attack, but also to take such precautions as may tend to prevent its recurrence.

Dr. Sydenham's practice in the treatment of this disease was limited to blood-letting, when the patients were young and plethoric, and to the administration of laudanum in order to lull the pain in other cases, trusting altogether to the operation of alteratives in the intervals. The plan of Dr. Cullen was still more inert, as he employed the aid of leeches in preference to that of the lancet, and was content to dismiss every remedy but patience and flannel. Later practitioners have varied both from these authorities, and from each other, and the medical world has been supplied, from their experience, with various specifics, as they have been termed; one class has recommended the depleting, another the refrigerant, and a third the stimulating plan. Dr. Kinglake, in particular, some years ago, excited much attention from his reports of cases which had been treated by the application of cold water, and even by immersing the limb therein, the doctor regarding the gout merely as a local affection, and therefore acting as in any other case of local inflammation. Several old authors recommended this practice; still, with the experience of many cases in which it has occasioned serious, and sometimes fatal, results, we may justly hesitate in summoning the measure to our service. At all events, if it be employed, the utmost caution is necessary in limiting it to those who are in full vigour, and perfectly free from any monitory symptoms that might announce disease in a vital organ. The treatment of Dr. Scudamore, a gentleman who has paid unremitting attention to the subject, is widely different; he employs warm water as a direct application, keeping the part continually moist with the aid of cloths, or a mixture of alcohol and warm water. He likewise regards the disordered condition of the primæ viæ as the great source of the peculiar irritation producing gout in the system, and accordingly employs cathartics, until the bowels are freely opened, when he introduces alteratives, chiefly employing the combination of calomel and antimony. During the paroxysm he does not hesitate in the direction of opium, and for the relief of pain at night, applies an evaporating lotion, composed of one part of alcohol and three of the camphor mixture, with boiling water sufficient to bring the whole to a heat between 75° and 80° of Fahrenheit. After the abatement of the inflammatory

symptoms, he prescribes a moderate tonic, together with the use of frictions and bandages. The celebrated remedy, known in England as the "Duke of Portland's cure," from the circumstance of that nobleman having purchased the knowledge of its composition, in order to render it available to the public, and which is for the most part formed of the materials named by the Greek writers Cœlius Aurelianus, Ætius, consisted of equal parts of birthwort, gentian, germander, ground-pine, and the tops and leaves of the lesser centaury; of this mixture a drachm was taken every morning for three months, and the dose gradually reduced at proper intervals, until the expiration of a twelvemonth, when a cure was said to be effected. There are numerous other medicines to which the character of specifics has been attached, but with the exception of one, we may dismiss their consideration from a conviction of their inutility. The one worthy of note is the meadow-saffron, known in the *Pharmacopœia* as colchicum. For some time previously to the use of this admirable medicine, a nostrum under the name of "*eau médicinale*," had been in great request among gouty patients. The composition of this much talked-of liquor, introduced into practice by M. Husson, is still unknown, although it is presumed that its principal ingredient is the colchicum; be this as it may, the latter has usurped the favour previously shown to the former, and it is now and justly considered the only medicine to which the term of specific can be applied. This substance is usually employed in the form of a vinous or acetous solution, in doses of from half a drachm to a drachm; its action is accompanied by great languor and nausea, increasing sometimes to a distressing sickness; the bowels are occasionally severely acted upon, and there is an evident determination of the medicine to the kidneys; when an over-dose is administered, the consequences are alarming, from the violent vomiting, purging, and the insensibility that occurs.

Sir Henry Hallford, in a paper lately read before the Royal College of Physicians, expatiates with much force on the value of this remedy, declaring that in no malady for which he is called to prescribe, has he so much confidence of success, as in gout, by the use of the colchicum. Under ordinary circumstances of gout in the extremities, he does not commence its use immediately, but postpones the antidote till the disease shall have become fixed: he then directs the wine of the root prepared according to the formula of the *Pharmacopœia*; and from this he expressly declared that he had not known "a single instance of any untoward effect."—Frequently it removes the complaint without the manifest increase of any secretion. Sometimes it causes perspiration, and sometimes acts as a diuretic; but so far is it from being apt to purge violently, as the *eau médicinale* was wont to do, that it is necessary, in most cases, to add a little sulphate of magnesia. The following is Sir

Henry's prescription ;—A saline draught, with camphor mixture ; a drachm of syrup of poppies ; and not exceeding from thirty-five to forty-five minims of the vinum colchici at bed time. In the morning the draught to be repeated, but with a little modification, viz. only twenty-five minims of the colchicum wine and a half drachm of the syrup of poppies, while to this is added a drachm of Epsom salts. This method is to be pursued for several successive days, and then followed up by a pill, composed of three grains of an acetic extract of colchicum, and one or two grains of Dover's powder, with a like quantity of compound extract of colocynth, the whole being terminated by a mild purgative. "It had been argued," said Sir Henry, "that it had been laid to the charge of colchicum that its good effects were but temporary ; now, even if it were so," he asked, "whether three or four attacks, of as many days each, were to be compared in the extent of suffering they produced, with the weight of a six weeks' confinement, spring and autumn, which used to be the case before the virtues of colchicum were known." In addition to which, the evils resulting from the formation of chalk stones in the joints are now almost entirely done away by the controul exercised by this medicine over the inflammatory stage of the disease.

It is sufficient to observe, after the recapitulation of these authorities for the treatment of regular gout, that, perhaps with the exception of colchicum, which appears to be available in all cases, our remedial plan must in a great degree be suited to the system and condition of the patient. When the individual is of a robust constitution, and an extremity is alone affected, the evacuating and even the refrigerant plan of proceeding may be pursued ; bleeding to a moderate extent, emptying the bowels, relaxing the skin, and *with the greatest caution* cooling the burning part by the application of lotions or cold water, are all justifiable ; whilst in weakly habits, or in those who have suffered from repeated attacks, all evacuants should be abstained from, and the patient committed to the simple agents, abstinence, patience, and warmth.

In the treatment of atonic gout, the weakened state of the system must be considered, and relieved by the use of warm tonics and a generous diet, at the same time immersing the legs in warm water, in order to induce a paroxysm to the extremities ; it must be recollected that the longer the disease continues in the vital organs, the weaker they become, and the less capable of being brought under the operation of remedies. Stimulants should always be within the reach of the patient subject to attack, combined with some warm aperient, as aloes or rhubarb ; they should however be abstained from during the intervals, as an habitual indulgence will not only weaken the system still further, but render the stimulus less powerful, when its full effects are desirable.

The oil of turpentine in doses of six drachms is warmly recommended by Dr. Mason Good, in atonic gout, as uniting the powers of an active cathartic, to a camphorate cordial, and the practice is worthy adoption. The preparations of ether may likewise be employed with benefit, particularly when this variety of the disease is distinguished by an icy coldness of the stomach, and a palpitation of the heart. Musk, given in large doses, at short intervals, has also been productive of advantage, and even phosphorus has been ventured upon as an active stimulant, in doses of two or three grains dissolved in ether; but it is rarely and perhaps never justifiably administered. External irritants may be added to the warm bath, such as the compound camphor liniment, sinapisms, or even the employment of the moxa. When the above remedies fail in producing the desired effects, opium, in large doses, should be given, and without delay. Some practitioners recommend the use of this drug in preference to every other medicine, at the earliest period of atonic gout, combined with antimony, so as to act towards the surface generally, and thus restore to the living power its interrupted equilibrium. Dr. Cullen was accustomed to give opium in the dose of ten grains twice a day, gradually diminishing the quantity as the attack subsided, until it could safely be discontinued.

In retrocedent gout, the same plan of treatment is necessary, adding to the strength of the local irritants, should the disease linger in the extremities, in order to recal it thither, and relieve the internal parts from attack. A light and generous diet may be allowed, with rather a larger quantity of wine than the patient has been accustomed to take; all violent cathartics should be avoided, and the bowels kept open with rhubarb or regulated doses of the aloetic preparations.

The misplaced gout demands a still more vigorous treatment; the prevailing inflammatory symptoms can only be met by such measures as would prove successful did the inflammation proceed from any other cause. Venesection, cathartics sufficiently strong to produce a free evacuation of the bowels, and the antiphlogistic regimen; in short, the complete adoption of the plan justified in all acute inflammatory affections must be summoned to our aid, without any reference to the cause from whence the symptoms have arisen.

The management of the constitution of a gouty patient in the intervals of disease, is no less important than the treatment during a paroxysm. An accurate observer will frequently detect the liability of a return from some error in diet, or some neglect of the system; in many cases, the luxuries of life have been immoderately enjoyed; in others, they have been too sparingly employed. In some instances the frame has been rendered feeble, by indolence or sedentary pursuits; in others it has been too frequently excited by over-exertion of body or mind:

moderation in all these circumstances must be strongly insisted upon, avoiding excess on the one hand, and neglect on the other. The bowels should always be carefully attended to, the hours of rest regular, and all excitement avoided; by such means the system may be kept free from invasion for many years, and perhaps for the whole of a subsequent life, in those who have suffered merely from a few regular paroxysms of gout. Where the constitution is weakly, it will be necessary to add an occasional course of strengthening medicines, consisting of tonics, with an admixture of bitters and astringents, in order that the action of the system may be increased, and its tone augmented.

See the works of Ring and Scudamore; Bateman, in Rees's *Cyclopædia*, article Gout; Cullen's *First Lines of the Practice of Physic*, and Dr. Lucas on the Principles of Inflammation and Fever.

GRANULATION, (from *granum*, a grain.)—So called from the little grain-like fleshy bodies formed in the process adopted by nature for filling up wounds or ulcers, which do not heal by adhesive inflammation. See *Inflammation*.

GRAVEL. See *Calculus*, and *Urinary Passages*, Diseases of.

GUAIACUM, *Resin and Wood*, *Guaiaci Resina et Lignum*.—Yielded from the *Guaiaecum Officinale*, a tree of the West Indian Islands, of the class Decandria, and order Monogynia. The wood is merely valuable from the quantity of resinous matter it contains; the resin is therefore the substance in which the virtues of the tree reside. Stimulant, diaphoretic and alterative in operation, occasionally employed in chronic rheumatism, cutaneous diseases, and the sequela of venereal attacks. *Dose*, gr. v. to ℥j. in pills, or formed into an emulsion with mucilage; as a stimulant, gr. xv. to ℥ij. (according to the age of the patient,) when intended to act as a purgative.

Incompatible with the mineral acids.

GUM, *Gummi*.—The mucilage of vegetables, obtained by exudation from a great number of plants. Gum is very soluble in water, forming a viscid solution, but is perfectly insoluble in alcohol, which precipitates it in a flocculent form from its watery solution; it is also insoluble in ether and oils; but when triturated with the latter, it serves to diffuse, and suspend them in water. It is neither fusible or volatile, but decomposes by a high temperature, leaving a charry mass, carbonic and acetic acids, an empyreumatic oil, and carburated hydrogen, a small portion of ammonia being at the same time disengaged. A variety of gums are employed in medicine, the description of which will be found under their respective names.

GUN-SHOT WOUNDS. See *Wounds*.

GUTTA ROSEA, or *Gutta Rosacea*.—Red spots on the face and nose. See *Acne* in *Cutaneous Diseases*.

GUTTA SERENA, *Amaurosis*. See *Eye*, Diseases of.

HÆMATEMESIS, (from *αἷμα*, blood, and *εμεω*, to vomit.)—A vomiting of blood from the stomach. See *Hæmorrhage*.

HÆMATOCELE, (from *αἷμα*, blood, and *κῆλη*, a tumour.)—A swelling of the scrotum or spermatic cord, proceeding from an extravasation of blood. See *Testicle*, Diseases of.

HÆMATODES, (from *αἷμα*, blood, and *εἶδος*, an appearance.)—So called from the colour of the tumour. See *Fungus Hæmatodes*.

HÆMATURIA, (from *αἷμα*, blood, and *ουρον*, urine.)—The voiding of blood with the urine. See *Urinary Passages*, Diseases of, and *Hæmorrhage*.

HÆMOPTYSIS, (from *αἷμα*, blood, and *πτύω*, to spit.)—*Spitting of blood*. See *Hæmorrhage* and *Lung*, Diseases of.

HÆMORRHAGE, *Hæmorrhagia*, from *αἷμα*, blood, and *ρηννυμι*, to break out.)—An excessive and preternatural flow of blood from any part of the body. Hæmorrhage may be divided into two varieties: 1. *Active hæmorrhage*, chiefly dependent on a general increase of force and frequency of arterial action, when the vessel or vessels yield to the distention and impetus; and 2. *Passive hæmorrhage*, arising from debility and relaxation of the vessels, when their coats give way without any force being urged against them.

1. **ACTIVE HÆMORRHAGE** is dependent on plethora or congestion; still, there must be a local cause in addition, that is capable of fixing it upon some particular organ; this is found in a greater degree of weakness in the vessels of such organ, than belongs to the vascular system generally. An hæmorrhagic tendency is frequently connected with sanguineous temperament, or an hereditary malformation of certain organs, when it is called into action by various causes, such as the sudden employment of muscular force, in running, lifting heavy weights, loud speaking, or the practice on wind instruments, vehement anger, or other violent emotions of the mind, suppressed evacuations, and external violence. Local irritants are also an occasional cause; epistaxis has succeeded to the application of a subtle powder to the nostrils, and the vessels of the kidneys and rectum have been excited to hæmorrhage by the injudicious use of cantharides, turpentine, and drastic purgatives. In some instances the occurrence of hæmorrhage has been productive of benefit; thus, cephalitis has ceased, upon a free discharge of blood from the nostrils; pneumonitis has disappeared in consequence of hæmoptysis; visceral inflammation has subsided from an evacuation of the hæmorrhoidal vessels, and jaundice has been relieved by hæmaturæ.

Hæmorrhages may become periodical from various organs, either from their continued weakness after a first attack, or from the cause that induced it remaining uncontrolled; or they may continue in a chronic form, under the operation of the same circumstances.

The consideration of hæmorrhage, from punctured or partially divided vessels, whether arteries or veins, may be transferred with propriety to the article *Heart, Arteries and Veins, their Injuries and Diseases*, which see. We may now turn to the hæmorrhages from the different organs of the body, constituting the attacks specifically termed hæmorrhagic.

1st. *Epistaxis, or bleeding from the nose*, is the common complaint of youth, and may be, perhaps, attributed in a great measure to the delicacy of the coats of that organ, in the early period of life. It is usually preceded by a sense of local heat, dull pain, and weight, in the head, itching in the nostrils, a flushing of the face, and an increase in the pulse, although in many cases, the hæmorrhage appears without any of these monitory symptoms, especially when an irritation of the lining membrane of the nose is the sole cause of the discharge. It generally occurs in young persons of a sanguine and plethoric habit, and is immediately excited by great heat, violent exertion in coughing or sneezing, blows or falls upon the part, or a long-continued stooping posture. Mental irritation, or even the power of the imagination, when any object is presented to the sense towards which a strong repugnance is manifested, is likewise sufficient, in some instances, to occasion hæmorrhage.

Epistaxis is seldom productive of any ill effects, and usually yields under the simplest treatment. Where it is evidently connected with plethora, it should not be interfered with, as nature is taking her own course for relief, and the freedom that is experienced by a previous weary and oppressed head, even after the loss of a small quantity of blood, is a proof of the salutary nature of the discharge; it has doubtless frequently cut short an attack of apoplexy, restrained the approach of epilepsy, and acted most beneficially in an incipient fever, wherein the brain was concerned. But, where the evacuation proceeds to an unusual extent, and where there is not sufficient cause for its production, by a state of plethora, it is necessary to check it by astringent applications. Cold water is the general and successful agent employed, either by immersing the nose and face in the fluid, or by syringing the nostrils; the latter measure should be cautiously employed, as the slightest violence will only add to the excitement already prevailing. The temples may be bound round with a cloth dipped in ice-cold water, and wet cloths may likewise be applied to the back or genitals. Where these measures fail, a tent dipped in vinegar or in moistened powdered charcoal may be introduced into the nostril. In obstinate epistaxis, an emetic has sometimes been administered, on the plea of its acting by constriction of the extreme vessels, but as it must necessarily stimulate

locally by the act of vomiting, its use is rather problematical; a nauseating medicine will act with much greater effect in producing a temporary vascular depression. When *all* other means fail, we have but one resource left, in plugging up the posterior nares, a plan that should, however, never be adopted but in a case of extreme necessity, as it is both a painful and troublesome operation. It may be thus performed: pass an elastic tube containing a strong waxed thread through the nostril to the back of the pharynx, and bring it out of the mouth with the aid of the curved forceps; the tube may now be withdrawn, leaving the thread with one end out of the nostril, and the other out of the mouth; to the latter attach a small piece of sponge, which is to be drawn inwards by the thread from the nostril, until it is stopped by the posterior nares, when a very slight degree of force is required to introduce it into the aperture; should this be insufficient, the same mode must be practised with the other nostril, afterwards plugging them both up from without with fine lint. The patient should then be placed in the recumbent position, and kept as tranquil as possible. In a day or two the sponge and thread may be withdrawn through the anterior nares.

Where there is a disposition to epistaxis from plethora, it will be necessary, in addition to the treatment for remedying a present inconvenience, to prevent a renewal, as far as may be accomplished, by the use of the lancet, and the employment of the antiphlogistic regimen, at the same time directing an occasional saline purgative; the system should be relieved of its load, the mind of any cares that may oppress it, and a light unirritating diet enjoined. When a bleeding of the nose is frequent in old persons, it is generally indicative of a tendency to apoplexy; it is hardly necessary to add that such a symptom must be sedulously watched, and its cause guarded against.

Hæmoptysis, or *spitting of blood*, commonly occurs between the ages of fifteen and thirty-five; at the former period the balance of the circulation may be said to be equally poised between the aortic and pulmonary systems, and the respiratory apparatus completely developed, when a tendency to accumulation will rather prevail in the pulmonary vessels, in consequence of the shortness of their extent; at the latter period the constitutional balance again becomes changed from the increased pressure that has been gradually made against the coats of the arteries during life, by which they are thickened and rendered more capable of resistance, the veins, on the contrary, becoming more subject to accumulation. It is sometimes difficult to discover from what particular vessel hæmoptysis proceeds, and we may even be deceived by blood flowing from the nostrils, fauces, or stomach, at the time it is supposed to be discharged from the lungs; epistaxis will cease on bending the

head forwards, and the blood generally flow from the nostrils; an inspection will satisfy us whether the hæmorrhage is from the fauces, whilst the blood from the stomach is usually of a dark colour, thrown up by vomiting, and mixed with some portions of food. When the blood proceeds from the lungs, and in particular from the pulmonary artery, it is chiefly discharged after coughing, and is of a florid hue; the precursive symptoms are, a sense of weight and oppression at the chest, an irritation of the fauces, and a dry, hard cough, more or less difficulty of respiration, a saltish taste in the mouth, a flushed countenance, and a hard and jerking pulse. Should a branch of the bronchial artery have given way, the flow of blood is slower, and smaller in quantity; there are no marked symptoms previously, and the blood, of a dark colour, is rather spit up, intermixed with saliva, than coughed up. Where hæmoptysis occurs in consequence of sudden exertion of the respiratory muscles in coughing, singing, or blowing upon wind instruments, or where it follows excess in eating or drinking, or a sudden and violent cough, but little danger is to be apprehended; its causes are then incidental, and will yield to proper remedies, but, where the lungs are diseased, there is great reason for alarm; the symptoms of phthisis are always thereby exasperated, as the blood that is retained, extravasates and forms an additional stimulus to an already excited organ. In pneumonitis, hæmoptysis is nearly always one of the first symptoms. As in all other cases of hæmorrhage, this variety sometimes fulfils a salutary intention, to the relief of a gorged liver, of obstructed menstruation, and of cases of asthma and pleurisy.

† The *treatment* must commence with venesection, which is the most important agent at our command in the management of hæmoptysis; a very considerable quantity of blood should be withdrawn at once, and the practice repeated as often as may be deemed expedient. Emetics have been, perhaps, more warmly recommended for this hæmorrhage than for epistaxis; but the propriety of their use is still more questionable than in that affection, and for the same reasons we have detailed under that head; the nauseating class of medicines, and in particular tartarized antimony, in repeated and very small doses, are every way preferable, as relaxing the vascular system without any effort. If ipecacuanha be preferred as more manageable, half a grain may be administered every half hour for many hours in succession.

In numerous cases the use of mild aperients and sedatives, after the use of the lancet, will supersede the employment of even nauseating draughts; the first may comprise the neutral salts, and the second the combination of nitre and digitalis, given in iced water, and swallowed very slowly. Should there be much cough, small doses of opium, and

the application of a blister to the chest, will tend to allay it. All general astringents are inadvisable; they can effect no determinate result, and will only interfere with the purposes of a more appropriate treatment. Under the heads of the several diseases in which hæmoptysis occurs, will be found a farther consideration of the subject.

Hæmatemesis is a term applied by the ancient Greek writers to a discharge of blood from the stomach and intestines, either by the mouth or the anus; it is seldom a disease of active hæmorrhage, except when excited by some external violence, strong emotion of the mind, or severe vomiting. The blood may proceed from the stomach itself, or from the spleen, the liver, the pancreas, or the smaller intestines; the quantity discharged is usually greater than that from the lungs, is thrown up, when from the stomach, by the act of vomiting, and is of a dark colour. *Hæmatemesis* has occasionally afforded relief in cases of suppressed catamenia.

The *treatment* must resemble that recommended for hæmoptysis in every particular.

See *Inflammation of the Stomach, and Viscera, Diseases of.*

Hæmaturia is that form of hæmorrhage when blood flows at the urethra, either from the bladder or the kidneys. The blood sometimes flows free and uncombined, and at others, mixed with urine, and in this last state is presumed to proceed from the bladder rather than the kidneys, which usually discharge but a small quantity of pure blood, and of a dark colour. It is very seldom an active hæmorrhage; when such is the case, the exciting cause may be a stone in the bladder, a violent blow on that organ, or in the region of the kidneys. It may likewise be produced either by the internal or external use of cantharides.

The *treatment* may resemble that adopted for the restraint of the previous hæmorrhages, and the compound powder of ipecacuanha, (Dover's powder,) may in particular be advantageously employed. The accompanying pain and irritation are greatly relieved by an abundant supply of demulcent drinks. See *Inflammation of the Bladder and Kidneys, and Diseases of the Urinary Passages.*

Menorrhagia, or hæmorrhage from the womb.—The reader is referred for a description of this variety to the article on the *Uterus*, which comprises all the affections of that organ.

Hæmorrhage from the Anus frequently assumes an active form in plethoric constitutions. This variety is not classed under the variety of hæmatemesis, as it occurs solely from the hæmorrhoidal vessels, which readily give way under a variety of excitements, the principal of which are, straining at stool, severe exercise, and taking cold. It may also succeed the administration of drastic purgatives, particularly the aloetic and terebinthinate preparations, when given in too large doses;

or even follow the frequent use of pungent and alliaceous food. By some writers, the anal hæmorrhage has been considered as merely symptomatic of piles; but this is evidently an error, as it often occurs when they have never been experienced.

A flow of blood from the hæmorrhoidal vessels is usually preceded by a senso of weight and uneasiness in the rectum, and sometimes by a pain and fulness in the head. The discharge frequently proves salutary in carrying off visceral congestions, and should be cautiously interfered with. Where, however, it is profuse, or has a tendency to return periodically, by which an excessive weakness would be induced, it must be restrained by the plans before recommended, particularly as in the cases of hæmoptysis. The aperients should be of the mildest character, and sulphur in particular, from its reaching the rectum nearly in an unaltered state, may be preferred. All stimulant food must be avoided, and the drink limited to the mildest diluents. As in epistaxis, we are enabled to employ local astringents, although they should not be used while the system continues in a plethoric state. A cold hip bath, or a bidet filled with iced water, injections of alum, zine, or lead, thrown up the rectum, and in such quantities as to be retained, may all be recommended, under the proper restrictions that the state of the case may demand.

2. **PASSIVE HÆMORRHAGE**, although productive of similar effects upon the system as active hæmorrhage, varies both in the cause and accompanying symptoms. It is the peculiar disease of age, when the vascular system shares in the general decay, and the vessels yield from the weakness and relaxation of their tunics. It will be sufficient to point out the characteristic distinctions between the varieties of this species and those of active hæmorrhage, as the farther consideration of each will be found under the heads of those diseases in which they appear as symptoms.

In *epistaxis*, the blood flows without heat, oppression, or pain in the head.

In *hæmoptysis*, it occurs even without the effort of coughing, and is generally accompanied with a scirrhus affection of the lungs; the countenance, instead of being flushed, is pale and wan, and there is a total absence of every symptom that characterized the active hæmorrhage.

In *hæmatæmesis*, the blood is discharged without pain, and with but slight expulsive effort, whilst a degree of nausea and faintness is produced by the evacuation.

In *hæmaturia*, there is likewise a degree of faintness, but very trifling pain; and one remarkable attendant circumstance is the flow of blood,

sometimes mixed with the semen, and at others, discharged in lieu of that fluid.

In *uterine hæmorrhage*, it is usually found connected with a cancerous or strumous tendency, as will be exemplified under the article *Uterus*.

In *hæmorrhoidal attacks*, it occurs spontaneously, without pain, and is usually concomitant with varices of the vessels of the rectum.

Treatment.—It is rarely necessary or advisable to employ the lancet; never, unless some signs of congestion appear, and even then with a cautious hand. Astringents and tonics may be made a liberal use of in the great majority of cases, and of these the mineral acids and salts may be advantageously employed, in combination with bitters. The preparations of iron have been warmly recommended in atonic hæmorrhage by some authors, and, with the exception of hæmoptysis, and those cases where much irritability is present they are worth a trial. The compound mixture of iron, (*mistura ferri composita*), known as 'Griffith's mixture,' is perhaps the least objectionable of the whole class, particularly as it holds myrrh in its combination, which is a valuable auxiliary. In those cases of hæmoptysis where there is a constant and harassing cough, opium, hyoscyamus, conium, and other narcotics, have been tried with considerable success. The preparations of bark, so inadmissible in active, may be had recourse to in the management of passive hæmorrhage, and particularly in that proceeding from the uterus.

The local astringents generally may be freely employed, at the same time that diffusible stimulants are supplied to the system at large. In epistaxis, the nostrils may be syringed with equal parts of the tincture of catechu and water, and a handkerchief wet with cold water applied round the temples, renewing it every quarter of an hour. Warm tinctures and aromatics may be added to astringents in hæmatemesis, and in addition, moderate draughts of warm negus, or the camphor mixture with the aromatic spirit of ammonia, may be administered. The acetate of lead is a medicine in much repute as an astringent, and may with propriety be given in grain doses with three or four drops of laudanum, made into a pill with conserve, every six hours; much has been said both in favour and abuse of this remedy, but the weight of testimony is so entirely in its favour, as to justify its prompt and free employment.

On the subject of Hæmorrhage, see Percival's Essays; Dr. Abercrombie in the Edinburgh Medical Journal, No. 78.; the first vol. of the Medical Transactions, and the Works of Dr. Mason Good.

HÆMORRHOIDS, (from *αἷμα*, blood, and *ρῶω*, to flow,) *The Piles*.—Excrescences or tumours arising about the verge of the anus, or the inferior part of the rectum. They are commonly arranged under two varieties: the *open* or *bleeding piles*, from their frequent discharge, and

the *blind piles*, when they are unaccompanied by any flow of blood. They are also denominated *inward* or *outward* piles, according to their situation within or without the rectum. They vary in size and form, some being not larger than a pea, whilst others attain the size of a hen's egg; in some instances they appear singly, and in others in clusters. The cause of piles may be attributed to any circumstance capable of retarding the return of blood through the hæmorrhoidal veins; thus, the pressure of the gravid uterus, and the retention of hardened fæces in the rectum, are frequently productive of them. People of a sedentary habit are particularly liable to their occurrence, and in some individuals they appear to be constitutional. Women, upon the whole, are more disposed to this affliction than men. Various opinions have been formed respecting the structure of piles, and in particular, whether they consist of elongated and enlarged hæmorrhoidal veins, or are formed by an effusion of blood under the lining membrane of the rectum; Mr. Abernethy, who inclines to the latter opinion, observes, "that although the hæmorrhoidal veins are occasionally enlarged, piles will in general be found to consist of mere fleshy substances that have become organized; if they be opened, no stream is emitted as from a vein, but a clot of effused blood is discovered. In some instances these small protuberances are absorbed, and the pile disappears; but more generally they become organized, and are succeeded by others of a similar nature. So long as hæmorrhoids are in an incipient state, they are remediable by simple means; a due regularity of the bowels, by which all straining in evacuation will be avoided, an abstinence from stimulating food, and an avoidance of violent purgatives, particularly those of the aloetic class, and occasionally anointing the parts with any mild ointment, and carefully replacing any portion of the bowel that may have descended after an attempt at stool, will be all that is required; but if, from the magnitude or number of the tumours, so great an obstacle is created to the expulsion of the fæces, that the bowel is forced down at every attempt to discharge them, or if, from an inflamed and ulcerated condition of the hæmorrhoids, an irritable action of the parts is kept up, tending to aggravate the disease, more severe measures are required for their removal. Two modes have been proposed for the extirpation of piles, in the use of the knife, and in the employment of the ligature. Mr. Abernethy bestows a preference upon the former method, after repeated trials of its efficacy. This surgeon, after having procured a regular evacuation of the bowels, and having perfectly cleared them before the operation, directed the patient to strain as much as possible, for the purpose of everting the intestine; he then laid hold of the piles with a double hook of a breadth corresponding to the length of the pile, and when drawn upwards from the bowel, it was removed with the scissors. If

a portion of the bowel were protruded and thickened, he removed it with the bistoury by two curved incisions, preferring the use of that instrument to the scissors, from the uncertain depth to which the latter instrument might extend. These latter incisions were always made in the long axis of the rectum. After the operation, the wounds were suffered to bleed as long as they were disposed so to do, and the parts afterwards replaced by means of the finger, previously oiled, when the anus was frequently bathed, to check inflammation and prevent a secondary hæmorrhage. The patient was afterwards confined to his bed for a few days, and allowed a light, though nourishing diet; and in the majority of instances in which Mr. Abernethy operated, a permanent cure was effected. Mr. Kirby, an eminent practitioner of Dublin, has published several cases in the Dublin Hospital Reports, in which he operated for the extirpation of piles, and this gentleman's practice fully establishes the propriety of that of Mr. Abernethy.

The plan of ligature is but little practised in the present day, and it has been chiefly discontinued from the constitutional suffering it was apt to occasion, even tetanus having followed as a consequence. Its warmest advocates have been M. Petit, of France, whose posthumous works contain several successful cures following the use of the ligature, and Mr. Howship of England; the latter surgeon was accustomed to tie two or three out of a number of hæmorrhoidal excrescences, when such a change was effected in the texture of the rest, as to render farther treatment unnecessary. Dr. Copeland has recommended the application of a very tight ligature, and its removal shortly afterwards, trusting to a succeeding inflammation and adhesion of the divided coats for a permanent cure.

The use of fomentations is advisable merely as a palliative, in order to subdue the excessive irritation that sometimes prevails; they should, however, not be persevered in for any length of time, as they tend still farther to relax the bowel, and thereby occasion its protrusion. Ointments containing nut-galls, opium, or the preparations of lead, form useful applications when much inflammation does not exist, and will frequently, when accompanied by regularity of habit, afford relief.

An idea has been entertained that the bleeding from piles is of a salutary or critical nature, and hence they have been submitted to, in the fear that their removal would establish an affection of a more formidable character; it would undoubtedly be unwise, in some constitutions, to stay an hæmorrhoidal discharge too suddenly, especially if it have been copious and of long continuance; but the means are always in our power to avert any effects consequent upon the removal of a disease, in itself a source of irritation and suffering.

See the Works of Abernethy, Petit, Copeland, Richter, and Howship.

HAIR, Diseases of the.—A variety of affections have been described by some authors, who have regarded the defects of baldness, gray and discoloured, or extraneous hair, as diseases. There are, however, but two of these affections to which we need direct our attention, the *Trichosis plica*, or *Plica Polonica*, and the *Trichosis sensitiva*, or *sensitive hair*.

The first, usually called the *Plica Polonica*, from its frequency among the Polish peasantry, or the matted or plaited hair, is a disease attributable to uncleanness, as it only appears in the lowest order of society, and particularly among the poorer Jews, who are proverbially distinguished by a neglect of their persons. In this disease the hair of the head, and sometimes that of the pubes, is twisted and glued together by a morbid secretion from the scalp. It has been pronounced contagious, and, by transferring the matter upon the nails from the head to some other part of the body, troublesome sores have been produced; the contagious properties of the disease are, however, extremely doubtful, and cannot be admitted if we consider uncleanness as its only cause. Some writers contend for a predisposition in the habit, affirming that it has followed local injury, or an affection in some remote organ, such as suppressed menstruation, an attack of psoriasis, or gout. A Dr. Kerekhoff, who had an opportunity of examining several cases of this disease in Poland, has detailed its disgusting appearance with great fidelity; this physician is convinced that it is no more endemic in Poland than in any other country, and that nothing more is necessary for its cure than an excision of the hair, and an attention to cleanliness. The head is usually visited, in these attacks, with an acute pain, and the hair itself is exquisitely tender, bleeding upon the slightest touch. A removal of this filthy mass was formerly considered inadvisable, in the apprehension of hæmorrhage; but Dr. Kerekhoff's proved that it might be cut off with perfect safety; his treatment commenced by the administration of an active cathartic, after which, he removed a small quantity of the hair, persevering each day in its excision, until, in about a fortnight or three weeks, the whole was taken away. The patient was then permitted to wash the head with milk and water, the comb was slightly passed over it, to remove any adhesions of scurf, and a few bit-
ters and other tonics were prescribed, which completed the cure.

Trichosis sensitiva is a very rare disease, and consists in a morbid condition of the scalp, under which not only blood-vessels but nerves will shoot into the tubes of the hair, conveying a high and painful degree of sensibility; the cerebral excitement is extreme, and requires the frequent use of the lancet, and a strict antiphlogistic regimen to

subdue it. In the best marked case that is recorded, that of a French soldier who received a kick from a horse on the occiput, and was immediately attacked by the disease, the state of the preternatural excitement, in a substance that had previously been insensible to feeling, was strikingly manifested.

It is difficult to recommend any treatment for a disease so little known; the most reasonable plan would appear to consist in lowering the system as much as possible, by means of venesection and antiphlogistic treatment, at the same time applying evaporating lotions to the part that is the subject of such morbid irritation.

HARE-LIP, *Labium leporinum*.—A fissure or longitudinal division of one or both lips. This malformation may be either single or double. When there are two fissures, it is best to operate on each separately, and not endeavour to unite both at the same time. As it is mostly congenital, it becomes a question at what period after birth the operation may be performed so as not to endanger the welfare of the little patient, and at the same time give the most reasonable hope of success; perhaps out of the variety of opinions, the propriety of postponing the operation until the child is about five months old, previously to the irritation caused by teething, is established. In England the operation is generally performed with a knife, and the cut edges approximated by sutures; at the Hotel Dieu, in Paris, the borders of the fissure are removed by the scissors; and needles with the twisted suture used for keeping its edges in apposition. Each mode may have its advantages; the wound made by the knife, being clearer and more regular throughout its whole surface, is of course better adapted for uniting readily by adhesion; while with the scissors the operation is more quickly performed and less blood lost; which latter circumstance may be of consequence if the subject be very young.

In operating with the knife the patient should be seated in a chair, or if a child, placed on the knees of an assistant, whose breast forms a support for the head, while his hands, placed on the cheeks keep it steady; and his index fingers pushed forward approximate the edges of the fissure. The operator then with a strait sharp-pointed bistoury, divides any unnatural adhesions between the lip and gum, and places under the right side of the lip, a thin piece of polished wood, which he supports by the index and middle fingers of the left hand below, and the thumb pressing on the lip above. Holding the bistoury as a pen, he now thrusts it through the lip, above the angle of the fissure, as high up as the inferior margin of the nostril, or the septum of the nose, and removes the border by cutting obliquely through the lip towards himself. He then places the wood beneath the other side of the fissure, and supports it with the two fingers, the assistant pressing the half lip above

towards his fellow ; the bistoury is to be thrust through at the same point as before and the other border removed, leaving a cut corresponding at every part with the opposed, and forming an angle more or less acute. The suture formed of a double waxed thread, is now to be passed from without inwards ; in doing which the needle is to be held between the thumb and middle finger of the right hand, the index resting on its top, and pushed through the left side of the lip at the junction of the villous part with the integument, and about half an inch from the cut border ; it is then continued from within outwards at a corresponding point on the opposite side. The needle with a part of the thread is then cut away : the operator takes hold of the ends of the suture, and by drawing them downwards, approximates the edges of the wound ; an assistant keeping them in that position, the second suture must be passed midway between the first and the apex of the angle, in the same manner as the former. The lower suture is then secured, and afterwards the upper, taking care that the cut surfaces be in exact contact. No plaster or bandage is required till the sutures are removed, which should be done about the fifth day, when they are to be snipt with the scissors ; a bandage may then be applied and continued for a few days till the union has become more solid.

In operating with the scissors, the patient being fixed as before, the right side of the lip is held between the thumb and index finger of the operator's left hand ; he then places the lip between the blades of the scissors and cuts away the border of the fissure at one stroke : he next takes the inferior part of the left border between the thumb and finger, and removes it in a similar way, observing that the two cuts unite at the apex of the angle. The needles are now to be applied ; common steel ones are said to be as good as any, and at one of the largest hospitals in France, the Hotel Dieu, at Lyons, these only have been employed for many years. The point being previously greased, it is held between the thumb and middle finger of the right hand, the index resting on its top, and pushed into the lip about a quarter of an inch from the cut border, and just above the junction of the villous part with the integument ; it is continued forwards obliquely, so as to pass through about two-thirds of the substance of the lip, and make its appearance just above the inner border of the cut surface ; it is then made to enter the opposite side of the wound at a similar point, and is pushed onwards till it has pierced the integuments, its course corresponding to the preceding.

Should there be any bleeding from the coronary artery, the needle should be passed completely behind the vessel, between it and the investing membrane of the lip, and directly opposite to the point where the artery is seated.

The extremities of this needle are to be encircled by a waxed thread.

passed behind them, which an assistant draws downwards, so as to bring the cut edges in contact at the upper part, where the second needle is applied in a similar manner. The ends of the thread are now carried round the extremities of the lower needle several times, crossing each time on its middle and forming a figure of 8; they are then to be made cross each other between the two needles, and carried round the ends of the upper one, on which a similar figure is to be formed, passing the threads under its extremities and over its middle as before. This being repeated a sufficient number of times to keep the edges of the wound in contact, the ends of the thread are to be made fast, and a small bolster of soft linen placed beneath the needles on each side of the wound, to prevent their extremities giving pain by pressure on the lip. The needles may be removed about the fifth or sixth day, the inferior one being first taken away.

See Averill's Operative Surgery; Cooper's Surgical Dictionary; Bell's Surgery, and Kirby's Cases, published in London, in 1819.

HEAD-ACHE, Cephalalgia.—This frequent complaint is dependent on a variety of causes, most of which may be traced to other diseases. When it occurs idiopathically, it may be in consequence of exposure to the intense rays of the sun, intemperance, or external violence: as a symptom, it appears to denote the existence of tumours, polypi, exostoses, and abscesses in the brain; to betray a debility or exhaustion of the nervous power, as often experienced by hard students, or by those who have suffered under severe mental affliction: the same nervous torpidity may induce head-ache, after long-continued diarrhœa, immoderate venesection, or any sudden faintness of the stomach. Rheumatism is a common cause of head-ache, when the pain will partake of the nature of the disease, both in its acuteness, intermission, and return. In dyspepsia, and hypochondriasis, it is a frequent accompaniment, particularly in the form of hemicrania. In individuals of a peculiar nervous irritability or spastic tendency, it occurs in a spasmodic form, sometimes limited to the temporal region, and at others extending over the whole organ. Thus, whatever retards the current of the blood in the sinuses of the brain, or in the veins conveying the blood from the head, in the form of tumours, exostoses, &c.; whatever tends to exhaust the nervous power, or disturb the balance of the circulation, may occasion head-ache, either idiopathically or as symptomatic of those diseases depending on local irritation, suddenly checked perspiration, exposure to cold and damp, a morbid condition of the viscera, and a derangement of those two great systems of the animal economy, to which we have alluded.

Treatment.—Idiopathic head-ache, when arising from a diseased action of the stomach, in consequence of excess, may be relieved by the

administration of an emetic, followed by a gentle purgative, and the latter should be occasionally repeated to restore the organ to its former regularity. In those cases where it occurs after severe study, from a debility of the nervous power, when costiveness will generally prevail, the frequent use of aperients is also demanded, together with a discontinuance of sedentary occupation, exercise in the open air, particularly on horseback, change of scene, and, in short, the permission of a complete repose to the mental faculties. When the pain does not readily yield to this treatment, the head should be shaved, and cloths dipped in cold water applied to the head, and should it still continue obstinate, bleeding either generally or locally by the cupping-glasses to the back of the neck, or leeches to the temples, may be practised. In spastic head-ache the same depleting plan may be pursued, and small doses of opium, hyoscyamus, or belladonna be administered.

The treatment of symptomatic head-ache will be found under the heads of those diseases of which it is an usual accompaniment. See *Tumours, Polypi, Rheumatism, Dyspepsia, Hypochondriasis, Spasm, &c.*

HEAD, Injuries of the,—Form one of the most important considerations in the science of surgery. They may be thus arranged for the purpose of description:—1. *Injuries of the Scalp.* 2. *Fracture with and without depression;* and 3. *Concussion.*

1. *Injuries of the Scalp.* See *Wounds.*

2. *Fractures* of the cranium are divided into those in which the broken parts preserve their situation, and those in which they do not; that is to say, either fractures with or without depression. When the breach of continuity is very fine, it has been sometimes termed a fissure, to distinguish it from the more severe accident called a fracture; and where the injury happens at a distance from the part which has received the blow, the phrase of counter-fissure or counter-fracture is applied to it. External violence is always the cause of all fractures of the skull, either through the medium of blows or falls. In the majority of accidents of fractures without depression, the brain endures a considerable concussion, and the patient is at once thrown into a state of insensibility; the simple fracture of the bone, indeed, is perfectly insufficient to account for the existing symptoms, for, as Pott observes, "the sickness, giddiness, vomiting, and loss of sense and motion, can only arise from an affection of the brain, the common sensorium. They may be produced by the brain having been violently shaken, by a derangement of its medullary structure, or by unnatural pressure made by a fluid extravasated on its surface, or within its ventricles; but never can be caused by the mere division of the bone, as such division can neither press on, nor derange the structure of the parts within the cranium." Such being the case, we may readily admit the impropriety of the former treatment.

in trephining nearly in every case of fracture. The same great surgical authority from whom we have just quoted, performed the operation as a *preventative* of ill consequences, not waiting even for the extravasation of the fluid, which he described as productive of danger to the patient. To trephine unnecessarily is manifestly to add a secondary to a primary injury, to convert a simple into a compound fracture, and to diminish the hope of safety. In a case of fracture without depression, the use of the trephine is never justifiable, unless for the purpose of the removal of pressure, in the form of an extravasation of blood on the dura mater, or the accumulation of matter between that membrane and the cranium. The treatment, justified by modern experience in ordinary cases, is as mild in its nature compared with the former method, as it is successful in its consequences. After the effects of the shock have subsided, and sensibility is perfectly restored, the approach of re-action is not long delayed; it is denoted by a quickening of the pulse, an increased heat of surface, more or less pain in the head, restlessness, and sometimes extreme agitation; the eyes are suffused, the face flushed, and thirst and a sense of nausea are experienced. The sufferer should be immediately bled, and to a considerable extent, from one or both arms, and, if necessary, from the violence of the symptoms, from the temporal artery also; he should be restricted to the lowest diet, and kept as tranquil and undisturbed as possible. Should the symptoms remain unchecked, the bleeding must be repeated, and a large blister may be applied to the scalp. The bowels should be freely acted upon by mercurial or other purges, and the antimonial class of medicines, particularly the tartarized antimony, may be administered with propriety in the intervals, whilst the topical application of cold water by means of cloths may be added. These are the best *preventatives*; should they prove ineffectual, and matter actually form under the cranium, of course the trephine must be employed without delay to give it exit.

Fractures at the basis of the skull, generally caused by a fall from a considerable height on the summit of the head, are very dangerous. The whole weight of the body is received on the foramen magnum, and cuneiform process of the occipital bone, and the consequence is a transverse fracture through both, and also through part of the temporal bone. This accident is characterised according to some practitioners, by the flowing of blood from each meatus auditorius, but we should be inclined to regard such a circumstance as proceeding rather from the general violence inflicted upon the contents of the cranium, than from any specific injury to a part. It has likewise been supposed that deafness follows this accident, in the few cases in which recovery ensues. A fracture sometimes occurs within the orbit, from the forcible introduction of a stick or other weapon, and is usually fatal, although the

first symptoms are not prophetic of serious consequences; the succeeding inflammation and suppuration rapidly extend to the brain, and as rapidly destroy. A fracture may also take place in the situation of the frontal sinuses, which is rendered apparent by an emphysema in the frontal region, or an escape of the air, when the nose is blown.

Sir Astley Cooper has observed of those fractures of the cranium, unaccompanied by concussion or depression, and therefore freed of every alarming symptom, that the divided portions become more slowly united, than in other bones, and that where the interspace is wide, it is not filled up with osseous matter.

In depressed fractures of the skull, the appearances are frequently very similar, and the treatment required the same, as in the injuries where the bone is not displaced. The first effects are precisely alike; a state of coma or insensibility is induced, which yields in proportion to the extent of the injury; the eyes are half open, the pupils dilated and motionless, the retina insensible, the limbs relaxed, the breathing stertorous, the pulse slow, and less subject to intermission than in cases of concussion. The patient is very seldom sick when the pressure is considerable, for the very act of vomiting is indicative of some degree of sensibility of the stomach and system generally. The use of the trephine will naturally be more frequently demanded in this, than in the former accident, still it is as unwise to employ it as a preventative. Should the system recover the first shock; and perfect consciousness return, it will hardly, in any instance, be necessary to perforate the cranium, until an extravasation of blood or an accumulation of matter is ascertained; the same vigorous treatment comprising the free use of the lancet, purgatives, antimonials, &c., as before recommended, will meet all the present necessities of the case, and go further in the prevention of ill consequences, than a renewed injury to the scalp in the employment of the trephine can possibly do; but if the state of stupor continue, if the system betray no approach towards revival, and if the fracture be evident, we are aware that the brain is labouring under the positive effects of the accident, by the pressure of a portion of bone, from which it must be relieved, ere a restoration of its functions can be accomplished.

The late Mr. Abernethy was decidedly of opinion that the use of the trephine was improper, when the patient perfectly regained his senses, unless extravasation of blood or the formation of matter afterwards, indicated its necessity. Sir A. Cooper observes, "when I am called to a compound fracture, with depression, which is exposed to view, whether symptoms of injured brain exist or not, I generally use an elevator, and very rarely the trephine. I put the elevator under the bone, raise it, and if it be comminuted, remove the small portions of

bone." Of the propriety of this practice there can be no doubt, but Sir A. Cooper is the last man in the profession, to cut through the scalp, and saw out a piece of bone, thus converting a simple into a compound fracture, (although in the conviction of a depression,) in the absence of urgent symptoms. We are aware that the brain can accommodate itself to very considerable pressure, without the slightest derangement of its functions, and the military records of cases even furnish us with examples of balls having continued in the substance of the brain, without an impairment of nervous power. We are occasionally summoned to a case where a depression is occasioned from the outer table being driven into the diploe, whilst the inner table is entire; the use of the trephine is of course inadmissible here, as no pressure upon the brain is occasioned. Sometimes the circumstances are partially reversed, and the inner table is fractured and depressed, while the outer one remains unbroken; being governed by the same rules of treatment, should the trephine be required, an incision must precede its application, on the spot where the blow was inflicted, and which will be apparent from the contusion on the scalp. Thus under all circumstances of fracture of the skull, the trephine should only be resorted to, when the insensibility of the patient denotes that the brain is actually suffering under compression, when an extravasation of blood follows the injury, or when an accumulation of matter has formed between the dura mater and cranium. In other respects, with the exception of the use of the elevator, in similar cases as that alluded to by Sir A. Cooper, the depleting and antiphlogistic modes of treatment are not only sufficient, but promise far happier results. There is but little difficulty in ascertaining when the patient is suffering under compression of the brain, from a portion of the bone beaten in upon that organ, as the state of insensibility continues; the only case indeed with which we can confound such an accident, is one of concussion, and even this may be distinguished, by attending to the signs described under the latter head. When an interval of sense occurs between a first and second attack of coma, we are aware that the system has recovered from the primary injury, and again yielded to the pressure caused by an effusion of blood. It is now an important consideration, where such an effusion has taken place; if between the dura mater and the skull, relief can be afforded, but if in the interior parts of the brain, all surgical assistance is of course useless. Unless one of the large arteries of the dura mater be wounded, the quantity of blood extravasated will be inconsiderable, and the slight symptoms of compression prevailing in consequence, will not require a perforation for their abatement, but yield gradually to proper antiphlogistic measures. Mr. Abernethy asserts, "that when so much blood has been effused on the dura mater, as materially to derange the

functions of the brain, the bone to a certain extent will no longer receive blood from within, and that a bone so circumstanced will not be found to bleed, or at all events to the same extent as it does when the dura mater remains connected with it internally." He also goes further, in stating, "that in two instances he was enabled to ascertain the extent to which the dura mater was detached within, from the want of hæmorrhage outside the cranium." And again, "that when symptoms appeared to demand the perforation of the skull, he has seen it contra-indicated by the hæmorrhage from the bone, and the patients have recovered." Some doubt may arise upon this subject when the bone has remained bare for a considerable time, but it will always be prudent to have recourse to so simple an experiment, as scraping a portion of the denuded bone, when if hæmorrhage occur, the propriety of trephining may be questioned, and a closer attention paid to the case before it is resorted to. Mr. Pott considered that the bone would perish when the dura mater was detached for a considerable space from its inside, but that his opinion was unfounded, has been proved by the concurrent testimony of numerous authors. Where however the dura mater is stripped from a large portion of the inside, at the same time that the outside of the skull is deprived of its pericranium, a portion of the bone will in all probability die, and exfoliate. The effused blood may occupy various situations; lying, as before expressed, between the dura mater and cranium, between the latter membrane and the arachnoid, on the surface of the pia mater, or in the substance and cavities of the brain. The more diffused it is, the less danger, as no great pressure is caused, unless the quantity be very considerable. When effusion takes place at the base of the skull, it is generally fatal. Paralysis is a frequent consequence of pressure on the brain, and it has been generally remarked on the opposite side to that, on which the injury has been sustained.

After all that has been said on fractures with or without depression, and extravasation, we must yet admit with Mr. Pott, that in many cases, we have *no infallible rule* for determining, whether the pressure is occasioned by a fragment of bone, or by an effused fluid: we have seen that a portion of the inner table may be depressed, whilst the outer table is unbroken, and should any time have elapsed after the accident, our first suppositions are very liable to be erroneous. The ideas suggested by Mr. Abernethy, respecting the vascularity of the denuded bone, may certainly relieve some of our doubts, in cases similar to those he has described, still, when accidents of this serious nature are enveloped in any uncertainty, the exercise of the soundest discretion is required in adapting the treatment to the existing necessity.

Fungus or Hernia Cerebri, that is, a protrusion of a portion of the

brain, is sometimes the consequence of a depressed fracture. The experience in a large hospital presents many instances of this occurrence after the employment of the trephine, and it doubtlessly originates from an injury of the brain at some distance from the surface. The effusion of blood consequent upon such injury, may be for a time restrained by the superincumbent brain and membranes, but these will gradually yield to the expansive force exerted from within, and at last give way, when the blood will ooze out and coagulate. It is improbable that the tumour consists of aught besides this blood, as time is hardly given for the production of an organized fungus. Mr. Abernethy has never perceived in these herniæ the slightest vascularity; whatever discharge took place was evidently from the diseased masses, of which they were but the prominent portions. "Where no bad symptoms precede the appearance of these tumours, or where they go away upon its being freed from the confinement of the dura mater, it may perhaps be more prudent not to interfere, for probably in a short time the hæmorrhage will cease, and the coagulum drop in pieces, or gradually waste away, and be no more renewed." The treatment may be restricted to covering the tumour and sore with some mild dressing, carefully avoiding all pressure. Should the bulk of the tumour, however, become inconvenient or render pressure from the dressing unavoidable, the safest practice consists in occasionally paring it away; but if the tumour still continue to increase and the patient to suffer a train of bad symptoms, apparently arising from irritation, and pressure made on the brain, we have reason to suspect that the coagulum from want of room to protrude, is enlarged internally, or that by plugging up the orifice in the bone, it prevents the escape of some fluid collected within the cranium. In such a case, it is obvious that the opening of the bone must be enlarged, in proportion to the extent and increase of the tumour. The apprehension of hæmorrhage must not deter us from this proceeding, besides it is more than probable that an exposure of the bleeding vessel will produce a beneficial change, and stay the flow of blood.

The accumulation of matter between the dura mater and the cranium, and likewise in the interior parts of the brain, in consequence of previous inflammation, is denoted by the invasion of similar symptoms as those described in a case of compression, in depressed fracture or extravasation, at a later period than occurs under either of those circumstances. Where such symptoms are urgent, it may be requisite to employ the trephine without delay, in order to permit a quick evacuation of the compressing fluid, but when the appearances are not very alarming, it is prudent to await the effects of depletion, and a low regimen. The general directions before given, are strictly available in the treatment of this affection.

See *Inflammation of the Brain, Pia Mater and Arachnoid Membranes*, also *Tumours of the Dura Mater*.

THE OPERATION OF TREPHINING.—There are certain parts of the skull on which it has been recommended not to apply the trephine; such are the anterior and inferior angle of the parietal bone, where the middle artery of the dura mater is situated, and which, when running through a canal in the bone, must necessarily be wounded; but, as in this case the hæmorrhage may be stopped by the application of a little lint, or the vessel may be secured by a pair of fine-forceps should it be situated only in a groove, the danger arising from its division ought not to be placed on a par with that, of permitting the cause of pressure or irritation to remain. Over the different sutures and sinuses too, some surgeons have hesitated to trephine, in consequence of the injury the dura mater would sustain from its intimate connexion with the bone at these parts being torn through, or the danger which would arise from opening the sinus itself; but, as many successful cases are related by Pott, and others, in which the operation has been performed over these parts, the above objections appear to be overruled. When it is necessary to trephine the frontal sinuses, an instrument with a large crown should be selected, and when the outer table is perforated, a smaller trephine is required for the inner table.

In order to practise the operation as conveniently as possible, the patient should be placed close to the edge of the bed, his head resting on a thin pillow, which should be supported by some solid substance, as a thick book, or a piece of board, taking care, if possible, to have that part of the head where the trephine is to be employed, the highest. The head being securely fixed by an assistant, the scalp is to be divided: if there be no depression of bone, a longitudinal incision made in the direction of the fracture will be sufficient, but if the bone be depressed, a crucial one will be required. When there is no fear of wounding the brain in dividing the integuments, the cut through them should be continued down to the bone, so as to raise, if possible, the pericranium with the integuments. If this be not effected, the pericranium must be divided in the same direction, and the bone denuded by dissecting back that membrane. The trephine, having its central pin properly arranged, is then taken by the operator, who, holding the handle firm in the palm of his hand, rests his index finger on the crown, which he places over the portion of the bone that is to be removed, the instrument being perpendicular to that part of the skull on which it rests. He now, by a half rotatory motion of his hand, turns the instrument, which saws into the substance of the bone. As soon as a sufficient channel is formed to confine the crown unassisted by the central pin, it is to be removed; or, as in the trephines of modern make, he

drawn up into the column of the instrument. The crown now used is so made as to clear itself of the dust or saw particles, consequently there is no necessity for brushing it as formerly ; however, it may be proper for the assistant to brush or blow away the small portions of bone which lie round the edge of the groove. The trephine being again applied, the bone is to be farther sawed, till the external table of the skull is cut through, which is often to be known by hæmorrhage from the diploe. But as there is frequently no diploe, especially in very young or old subjects, it is always proper to examine with a probe to what extent the bone is cut through. The operation is to be continued with great caution, lest the membranes of the brain be injured by the teeth of the trephine. It will therefore be necessary to examine, from time to time, with a probe, to ascertain if the bone be sawed through at *any one part*. As soon as that is discovered to be the case, the elevator is to be applied, and being used as a lever, with the hand for its fulcrum, the circular piece of bone is, if possible, to be raised. Otherwise the sawing is to be very cautiously prosecuted where the piece of bone appears most firmly connected with the rest of the cranium ; and, for this purpose, if there be one at hand, the half-trephine is the best instrument that can be used. Should a portion splintered from the circular piece remain projecting from the inner table, it should be broken off by a pair of forceps, or cut away with the lenticular knife. The flaps should be placed smoothly over the circular opening, a mild dressing applied with a soft compress of lint, and a double-headed roller.

In performing this operation the French surgeons use the trepan. On the top or head of the instrument, which is constructed like a carpenter's centre-bit, the operator rests his chin, and turns the instrument from right to left till he has sawed through the bone. They say they give the preference to this instrument because it does not require so much manual force, or pressure, as the trephine ; in consequence of which there is less danger of wounding the membranes of the brain.

Concussion, or a general irritation of the whole brain from external violence.—When the skull is struck, it changes its shape, becoming flattened in the direction of the violence, and widened in the opposite direction, as happens in the same circumstances to every round elastic body ; the brain thus receives an universal shock, which disorders its functions, and in some rare instances even lacerates its substance ; an increased determination of blood to the organ is induced, and occasionally a vessel gives way, and extravasation is added to the previous injury. The whole train of symptoms have been divided by Mr. Abernethy into three stages. "The *first* is that state of insensibility and derangement of bodily powers which immediately succeeds the accident.

While it lasts, the patient scarcely feels any injury that may be inflicted on him. His breathing is difficult, but in general without stertor, his pulse intermits, and his extremities are cold. But such a state cannot last long; it goes off gradually, and is succeeded by another, which I consider as the *second* stage of concussion. In this the pulse and respiration become better, and though not regularly performed, are sufficient to maintain life, and to diffuse warmth over the extreme parts of the body. The feeling of the patient is now so far restored, that he is sensible if his skin be pinched: but he lies stupid and inattentive to slight external impressions. As the effects of concussion diminish, he becomes capable of replying to questions put to him in a loud tone of voice, especially when they refer to his chief suffering at the time, as pain in the head, &c.; otherwise he answers incoherently, and as if his attention were occupied by something else. As long as the stupor remains, the inflammation of the brain seems to be moderate; but as the former abates, the latter seldom fails to increase; and this constitutes the *third* stage, which is the most important of the series of effects proceeding from concussion. These several stages vary considerably in their degree and duration; but more or less of each will be found to take place in every instance where the brain has been violently shaken. Whether they bear any certain proportion to each other or not, I do not know. Indeed, this will depend upon such a variety of circumstances in the constitution, the injury, and the after-treatment, that it must be difficult to determine." "With regard to the treatment of concussion, it would appear that, in the first stage, very little can be done; and perhaps what little is done had better be omitted, as the brain and nerves are probably insensible to any stimulants that can be employed. From a loose, and, I think, fallacious, analogy between the insensibility in fainting and that which occurs in concussion, the more powerful stimulants, such as wine, brandy, and volatile alkali, are commonly had recourse to, as soon as the patient can be got to swallow. The same reasoning which led to the employment of these remedies in the *first* stage, in order to reëstablish sensibility, has given a kind of sanction to their repetition in the *second*, with a view to continue and increase it." "But here the practice becomes more pernicious and less defensible. The circumstance of the brain having so far recovered its powers as to carry on the animal functions in a degree sufficient to maintain life, is surely a strong argument that it will continue to do so, without the aid of means which probably tend to exhaust parts already weakened, by the violent action they induce, and it seems probable that these stimulating liquors will aggravate that inflammation which must sooner or later ensue." We have already detailed the symptoms of compression, which have occasionally been confounded with those of concussion; an attention, however, to the

appearances of the latter, and a comparison with those of the former, will enable us to distinguish the nature of the accident without much difficulty, unless in fractures of the basis of the skull, where the symptoms are more deceptive. "In concussion the insensibility is of short duration, and during its continuance the body is generally cold, and the pulse feeble and intermitting. The pupil of the eye is not dilated, but rather contracted; the countenance expresses pain and anxiety, and vomiting afterwards occasionally takes place; the skin is hotter than usual, the pulse and respiration more frequent,—the former still intermitting, whilst the latter is unaccompanied by any stertor." A great torpor prevails in the intestinal canal, and an evacuation is with difficulty procured; but subsequently the fæces sometimes pass involuntarily. The bladder becomes distended, requiring the use of the catheter for its relief; the urine also after a time comes away involuntarily; the mind is variously affected; in some cases there is a total loss of mental power for many hours after the accident; in others, the patient can be roused, though with difficulty, to a consciousness of surrounding objects; sometimes the memory is totally lost, while in others it is only impaired, and one remarkable circumstance that has frequently attended concussion is the total forgetfulness of a foreign language, formerly familiar to the patient. The effects of concussion are various; they may subside either in a few minutes, a few hours, or continue for several days, and in the worst cases, death may almost immediately follow the accident. A partial loss of the sense of hearing in one ear, an impairment of vision in one eye, a degree of fatuity, vertigo, and a tendency to severe headache from the slightest excitement, and even continued irritability of the stomach, are all described by Sir A. Cooper as occasional consequences of a concussion of the brain.

Mr. Pott has well described the distinctions between extravasation and concussion, which are sometimes very difficult to perceive, in the following words. "The first stunning or deprivation of sense, whether total or partial, may be from either, and no man can tell from which; but when these first symptoms have been removed, or have spontaneously disappeared, if such patient be again oppressed with drowsiness, stupidity, total or partial loss of sense, it then becomes probable that the first complaints were from commotion, and that the latter are from extravasation; and the greater the distance of time between the two, the greater is the probability that not only an extravasation is the cause, but that it is of the limpid kind, made gradatim, and within the brain."

Treatment.—We have already seen from Mr. Abernethy's description of the state of concussion in its first stage, that little can be done until the system somewhat recovers the shock it has experienced; however

valuable venesection may be a few hours afterwards, to practise it at a time when the circulation is almost stopped, and the whole system wavering between life and death, would be the height of rashness and folly; nor is the use of powerful stimulants free from danger; we have to dread the approach of inflammation in an after-stage, and their administration will but add to its violence. If it be judged advisable to stimulate the system slightly, in order to arouse it to some degree of consciousness, a little warm negus is perhaps the utmost that ought to be given. When the state of coma has ceased, and the second stage succeeds, the most vigorous means are necessary in order to obviate, as far as possible, the inflammation that marks the third stage. Sir A. Cooper observes, "bleeding may be carried to excess. You must, in the repetition of bleeding, regulate your conduct by the symptoms; observe whether there be any hardness in your patient's pulse, and whether he complains of pain in the head, if he still have the power of complaining; watch him with the closest anxiety, visit him at least three times a-day, and if you find any hardness of the pulse supervening, after the first copious bleeding, take away a tea-cup full of blood; but do not go on bleeding him largely, for you would, by so doing, reduce the strength too much, and prevent the reparative process of nature."

Should the pulse continue hard, and pain in the head still remain, when the patient's strength is too much exhausted to bear renewed venesection, leeches or the cupping-glasses may be applied to the temple. Purgative and antimonial medicines may likewise be directed; also blisters on the head and nape of the neck, after bleeding has been performed, and the bowels well cleared; and to all these means may be added the constant application to the head of cloths dipped in very cold water. In children, where it may be difficult to withdraw a sufficient quantity of blood from the arm, the jugular vein may be opened.

Sir A. Cooper, in alluding to some of the consequences of concussion, after a partial recovery, such as pain in the head, giddiness, dimness of sight, or a defect in hearing, directs the head to be washed with a spirit lotion, or the use of the shower bath; in some cases he has advised the ointment of cantharides to be rubbed on the head, together with the internal administration of the blue-pill and extract of colocynth. In cases of nervous debility, he recommends an electric shock to be passed through the head, and in long-continued pains of that organ, he sometimes forms an issue in the scalp.

It is necessary to remember, that an individual who has suffered from concussion of the brain, is very apt to experience a relapse, from the injury that organ may have sustained, even for an indefinite time after the accident. The slightest re-appearance of former symptoms, must be met by the same energetic plan of treatment before demanded.

See Abernethy's *Surgical Works*; Sir A. Cooper's *Lectures*; J. L. Petit, *Traité des Maladies Chir.*, t. 1; Dr. Hennens's *Principles of Military Surgery*; *Les Œuvres Chir. de Desault*, par Bichat; Pott on *Injuries of the Head*, and Dease's *Observations on Wounds of the Head*. Also Schmucker's *Wahrnehmungen und Vermischte Chir. Schriften*, and O'Halloran on the different disorders arising from external *Injuries of the Head*.

HEART and ARTERIES, *Diseases of.*

1. *Of the Heart.*—This organ, the centre of the vascular system, is subject to a variety of diseases, some of an acute, and others of a chronic character. The researches of modern pathologists have tended in a great measure to elucidate many circumstances that were previously enveloped in obscurity, and the use of the stethoscope, in particular, has enabled them accurately to distinguish between affections that were formerly confounded. In order to understand the true nature of diseases of the heart, and the mode by which they are discovered, we shall take a brief review of the phenomena arising from the action of this organ, both in a healthy and a morbid condition.

The natural phenomena consist in the extent of the pulsations of the heart, their stroke or impulse, the sound produced by them, and their rhythm.

Extent of the pulsations. In a healthy man, whose heart is well proportioned, the pulsations are only heard between the fifth and seventh ribs on the left side, and under the inferior part of the sternum. The motions of the left cavities are heard particularly in the first, those of the right in the second situation. When the sternum is short, the pulsations may be heard in the epigastrium.

In fat subjects, in whom the pulsations of the heart cannot be felt with the hand, the space in which we can hear them by means of the stethoscope is sometimes limited to a surface of not more than a square inch. In meagre persons, on the contrary, whose chests are ill-developed, we distinguish the pulsations over three-fourths of the sternum from below upwards,—sometimes even over the whole of this bone; over the superior part of the chest; and even under the right clavicle. In these cases, when the pulsation is less under the clavicles than in the præcordial region, we may conclude that the heart is in good proportion.

The shock or impulse.—By the impulse is meant the feeling of elevation or percussion which is given by the pulsation of the heart. It is distinct under the stethoscope, when the hand, applied over the præcordial region, can feel nothing. In a healthy man, especially if he be moderately fat, it is very little marked. We can distinguish it generally

in the præcordial region, and the inferior half of the sternum, and always with greater force between the cartilages of the fifth and seventh ribs, the point corresponding to the apex of the heart. Its force varies *ad infinitum*, according to the constitution of the subject. Custom teaches us to distinguish when this force is greater or less than in the state of health.

The sound.—In the state of health, the alternate contractions of the different parts of the heart give rise to sounds, easily perceivable by the stethoscope, whatever may be the size and force of the circulatory organ. Each pulsation of the heart corresponds to two successive sounds; the one, clear, distinct, and analogous to that produced by the valve of a bellows, corresponds to the systole of the auricles; the other, more dull and prolonged, coincides with the arterial pulsation, and the feeling of impulse mentioned above. It is produced by the contraction of the ventricles. The sound of the right cavities is heard in the inferior part of the sternum; that of the left, between the fifth and sixth costal cartilages. It is always stronger in the præcordial region than in the other parts of the chest, where it may be distinct in subjects in whom the parietes of the heart are thin. In these latter cases, the sound of the auricles is more distinct under the clavicles than that of the ventricles, which does not occur at the præcordial region. In individuals in whom the anterior edges of the lungs are prolonged before the pericardium, the sound of the auricles is more obscure than that of the ventricles. In some cases the sound is no longer distinct.

The rhythm.—By this term we understand the order in which the different parts of the heart contract, and the respective duration and succession of these contractions to one another. When the finger is applied to the pulse of a healthy man, at the moment of its diastole, the ear applied to the stethoscope is slightly raised by a motion of the heart synchronous with that of the artery, while, at the same time, there is a dull sound; this indicates the contraction of the ventricles. Immediately after, and without any interval, a sound more distinct, and of shorter duration, announces the contraction of the auricle; no motion sensible to the ear accompanies this sound. An interval of short, but well marked repose succeeds, after which a new contraction of the heart is heard.

The respective durations of the contractions of the auricles and ventricles appear to be pretty exactly determined in the following manner. Of the whole time in which a complete contraction and interval of repose take place, from a third to a fourth is taken up by the systole of the auricles, a little less than a fourth by absolute repose, and the remainder by the contraction of the ventricles. These relations exist, whatever

may be the velocity or frequency of the motions, when the organ is healthy and in good proportion.

The *pathological phenomena* may be divided into those which relate to the extent in which the pulsations of the heart can be perceived, to the force of the pulsation, and to the nature and intensity of the sound thus produced. The extent of pulsation may either pass its usual limits, or be confined to an unusually small surface.

Auscultation teaches us that the following is the order in which the augmentation of extent usually proceeds: it first occurs over the whole anterior part of the left side; secondly, over the same space on the right side; thirdly, over the left posterior part of the chest; and fourthly, (but which rarely occurs,) over the right posterior part. The intensity of sound diminishes also in the above degree. The possibility of hearing the pulsations of the heart in these different regions, generally indicates a state of debility of that organ, as a thinning of its parietes, or passive dilatation of some of its cavities.

It may also arise from causes foreign to the state of the heart, and whose action is either temporary or permanent; such as emaciation, contraction of the chest, induration of the lung, the existence of excavations with firm parietes, pneumo-thorax, pleurisy, nervous agitation, &c.

Of dilatation.—In this affection the sound of the pulsations is clearer than natural in the præcordial region. The ventricular contraction is distinct and sonorous; the extent in which we can hear the pulsations is increased, while the impulse is trifling.

This disease may affect both ventricles; it is, however, more frequently met with in the right than the left. The part where the sharp distinct sound is heard, points out the cavity affected; thus, when it is heard between the fifth and seventh ribs on the left side, corresponding to the ventricular contraction, it forms the pathognomonic sign of dilatation of the left ventricle. The same sound, heard under the sternum, or between the cartilages of the fifth and seventh ribs on the right side, indicates the dilatation of the right ventricle.

Pathology.—In this affection, denominated passive aneurism by Corvisart, the cavity of the ventricles is increased in size, while their parietes become thin; this thinning may be so great, that the left ventricle shall have only two lines in thickness at its base, and half a line at its apex. The muscular substance is softened, sometimes so much so as to be easily broken between the fingers; the colour is sometimes deeper than in the healthy state, sometimes paler and almost yellow. The columnæ carneæ are removed from one another, and the inter-ventricular septum is diminished in thickness and consistence.

The increase of the dilated cavities is more in the direction of their diameter than of their length.

The most evident symptoms of this disease are, a sense of oppression in the chest, difficulty of breathing, and a full, slow, soft, and sometimes even an imperceptible pulse; they may thus continue for years without an evident increase, except after some unaccustomed exertion. Dropsy is usually the sequel, occurring particularly in the pericardium and in some instances a chronic inflammation of this investing membrane supervenes shortly before death.

Of Dilatation with Hypertrophia.—This alteration, which constitutes the active aneurism of Corvisart, is detected by the strong and extended pulsation in the region of the heart, which appears to repel the hand with force; by the hardness and volume of the arterial pulsations, which may be compared to a column of mercury striking the finger, and which are evident to the sight in many parts of the body. Percussion on the region of the heart gives a dull sound. The ear, on the stethoscope being applied over the heart, receives a strong impulse at each contraction of the ventricles, while a distinct sound is heard. The auricular contractions are sonorous; and the pulsations are heard over a great extent, while their rhythm is rarely altered.

Pathology.—Dilatation with hypertrophia may exist in one or in both ventricles. It is in the last case that the heart increases so much in volume. This augmentation is owing to the thickening of the parietes of the ventricles, and the proportional increase in size of these cavities. The muscular substance of the ventricles is firmer than natural; the apex of the heart becomes blunter. The auricles are sometimes found affected, but rarely without complication of disease in the heart.

We not unfrequently meet with dilatation of one ventricle, and hypertrophia of the other; but this disease is not so common as the preceding. Its symptoms are composed of those of each affection, that one predominating which is most severe. M. Lænnec reckons the following combinations of this kind which may occur. 1st. Active aneurism of the left, with passive of the right ventricle. 2d. Active aneurism of the left, with simple hypertrophia of the right ventricle. 3d. Active aneurism of the right, with passive of the left. 4th. Simple hypertrophia of the right, with passive aneurism of the left ventricle.

Dilatation of the Auricles is a case rarely met with, especially when we consider the comparative frequency of a similar affection of the ventricles. It is sometimes found to occur in patients suffering under hypertrophia, or dilatation of the ventricles; but most frequently this does not occur. More rarely the auricles are found dilated, while the ventricles remain in their natural stato. Dilatation of the auricles may depend on two different causes; first, upon an augmentation of their cavities

which takes place during life, and depends upon hypertrophia of one of the ventricles, on ossification, or thickening of the auriculo-ventricular valves. Secondly, upon an apparent increase of size, taking place during the last moments of life, from the accumulation of blood in the auricles, which become distended on account of the elasticity of their tissue, but return to their original dimensions when the distending cause is removed. In this case they are thin, and allow the colour of the blood to be seen through many points of their surface; while, in the former, there is generally some thickening of their parietes, and, upon being emptied through their own vessels, the auricles do not regain their original dimensions, but remain permanently enlarged. The signs of the auricular dilatation, obtained by means of the stethoscope, may be confounded with those of the alterations of the heart, to which the dilatation is owing. Thus, when the left auricle is affected, the signs obtained may be confounded with those of ossification of the mitral valve; and dilatation of the right auricle is difficult to be distinguished from hypertrophia of the ventricle on the same side. Nevertheless, it may be said, that whenever the auricles are dilated, the sound of their contractions loses the clear and distinct character peculiar to them in the state of health, becoming duller, and analogous to that produced by air suddenly issuing from a bellows.

The diminution of extent in which the pulsations of the heart can be heard, is generally indicative of a thickening of the parietes of this organ, accompanied by diminution of its capacity. It occurs in softening of the heart; but most commonly in pure hypertrophia.

The symptoms attending this affection of the heart are far more striking than in the last described; there is a constant and painful anxiety referred to the situation of the heart, together with violent palpitations; the pulse is quick and hard, and "when the hand is applied to the chest, the stroke seems restrained, and is succeeded by a kind of thrill." So great a state of excitement rapidly exhausts the system, which becomes unable to endure the slightest exertion, the mental faculties share in the decay, and as in simple dilatation, dropsy frequently appears as the precursor to dissolution.

Of Hypertrophia.—When the left ventricle is in a state of hypertrophia, its contraction gives a stronger impulse and duller sound than in the natural state. The sound is prolonged in proportion to the degree of hypertrophia; and the contraction of the auricle is indistinct. The pulsations of the heart are heard over a small extent, sometimes only between the cartilages of the fifth and seventh ribs. When the right ventricle is affected, the sound of its contractions is the same as in the former case, except that it is not quite so dull; the impulse is stronger at the inferior part of the sternum, than between the cartilages of the

fifth and seventh ribs on the left side, which is the contrary of what happens when the left ventricle is diseased. When hypertrophia occurs in both ventricles, the symptoms met with are composed of those resulting from the affection of each, but generally those of the right side are predominant.

*Pathology.**—When the left ventricle is affected with hypertrophia, its parietes become greatly thickened, which morbid alteration diminishes from the base to the apex. The columnæ carneæ, and the inter-ventricular septum, partake likewise of the disease. The muscular substance becomes firmer and redder than natural. The cavity of the ventricle appears to diminish in proportion as its parietes are thickened; sometimes so much so, as to be hardly capable of containing an almond. The right ventricle is smaller as the hypertrophia of the left is more developed; it is flattened in the direction of the inter-ventricular septum, and does not descend to the apex of the heart.

Hypertrophia of the right ventricle differs from that of the left, in being more uniform, as the thickening is nearly the same in every point, except about the tricuspid valve, and the origin of the pulmonary artery. The augmentation of the columnæ carneæ, and the great firmness of the muscular substance, are very remarkable. The thickness of the parietes is never more than from four to five lines.

Symptoms.—In confirmed hypertrophy the pulse at the wrist is occasionally soft and small, except during an exacerbation of the affection, when it becomes hard, tense, and vibrating, and not in correspondence with the beatings of the heart. A sense of weight is complained of in the præcordial region, together with a deep seated pain and frequent palpitations; respiration is difficult, and scarcely practicable in the horizontal posture; the slightest exercise increases the symptoms, and fits of syncope are not uncommon. The limbs become œdematous, as the disease proceeds, and the system at last sinks under dropsical attack.

Softening of the heart.—The sound produced by the contractions of the heart, we have seen to be clearer in dilatation, and duller in hypertrophia. There is a disease of the heart, termed by the French authors *Ramolissement*, which consists in a softening of its muscular substance; and in which the sound is duller than natural, and in some cases, disappears altogether. When, with little impulse, both the contractions of

* M. Bertin describes three species of hypertrophia. The first he calls simple, where there is merely thickening, without alteration in the capacity of the affected part. The second is the active aneurism of Corvisart; and in the third, the cavity is diminished in proportion as its parietes are thickened. Thus, he says, we have *simple, eccentric, and concentric* hypertrophia.

the heart give an equally moderate, dull, and obtuse sound, we may suspect that the heart is softened, but still in good proportion. When this affection is combined with dilatation, the sound, though still clear to a certain degree, is, however, duller than when the latter disease occurs by itself. When it co-exists with hypertrophia, the sound of the ventricular contraction can hardly be heard, and in extreme cases, disappears completely.

Pathology.—In this disease, the muscular substance of the heart is shrivelled, and so soft that it can be easily torn; it is sometimes almost friable, so that the parietes of the ventricles break when pressed by the finger. When this takes place, the heart is generally found not more than half full of blood; when cut, the parietes of both ventricles collapse equally, whatever may have been their previous thickness. The colour of the heart is sometimes completely violet, but commonly it is of a pale yellow, which is frequently most evident in the central parts of the substance of the parietes, diminishing towards the outer and inner surfaces. It occasionally happens, that when the heart is altogether softened, and of a yellow colour, there are found here and there points of a red colour and natural consistence. This softening of the substance of the heart, accompanied by a yellow colour, is most frequently met with, in cases where dilatation is combined with a slight degree of hypertrophia.

This disease takes another form, in which the colour of the heart is of a whitish hue; the substance is not so much altered as to become friable, but it is flabby, so that its parietes collapse upon being cut into. This affection is observed in cases of pericarditis.

DISEASE OF THE VALVES.—We have now treated of the alteration in the intensity and extent of the sound, produced by the contractions of the heart, as indicative of augmentation in its size, thickness, and consistence. But there are certain sounds not heard in the natural state, which M. Lennec first described as accompanying disease of the valves, or narrowing of the orifices of the heart; these are two in number, namely, what the above author terms, *bruit de rape*, and *bruit de soufflet*; the first analogous to that produced by a saw, and the second to that of a bellows. The first of these sounds is considered by M. Lennec to be indicative of ossification of the valves, their cartilaginous induration, or the growth of warty excrescences on them.

When the mitral valve is affected, the sound of the auricular contraction is more prolonged, duller, and accompanied by a grating noise, which resembles that produced by a saw when drawn over a piece of wood. When the hand is placed over the heart, a vibratory sensation is perceived.

When the tricuspid valves are affected, the sound is heard on the

right side, while it is distinguished from that produced when the sigmoid valves are thus diseased, by the sound in the latter case being isochronous with the contraction of the ventricles, which is more or less prolonged.

The cause of the second species of sound is still involved in great obscurity. This phenomenon appears to accompany contractions of different parts of the heart or arteries, but may, however, be produced in some individuals, especially those of a nervous temperament, without any alteration in the functions or structure of the heart. It is heard whenever we compress an artery, and listen to its pulsations by means of the stethoscope; also before hæmorrhages, in the vessels that carry blood to the part where the bleeding takes place, and generally in palpitations arising from any cause whatsoever. It is of a peculiarly inconstant character, appearing and disappearing in a short space of time; and may thus frequently mislead an inexperienced observer.

Pathology.—The state of ossification, or cartilaginous induration, generally occurs in the mitral valve and sigmoid valves of the aorta. The tricuspid valve and sigmoid valves of the pulmonary artery, are sometimes, though much more rarely, affected.* The cartilaginous induration of the mitral valve may occur either wholly or in part; it is, however, generally thicker at the points and base than elsewhere. The ossification of the valve occurs under the same circumstances, with respect to situation and inequality of thickness. Like the former affection, it is first developed in the duplicature of the membrane forming the valve, which it penetrates. The valve is seldom perfectly ossified, and gives a sensation as if a number of minute stony fragments were pressed between the fingers. When the edge of the valve is thus affected, the tongue-like processes of which it is composed are united, or, as it were, soldered together, thus forming an aperture sometimes so narrow as scarcely to allow a quill to pass through. Ossification of the sigmoid valves of the aorta generally commences in the coronary aurantia. When the ossification is very extensive, the valves are united; they curve either inwards or outwards, and resemble, to a certain degree, some species of shells. In this state they are immovable, and diminish considerably the aortic orifice.

The growth of warty excrescences, or *vegetations* as they have been termed, may take place either on the valves, or the internal parietes of the heart. In the first case, the excrescences resemble the syphilitic warts which occur on the glans penis, or orifice of the vagina; sometimes they are very adherent, in other instances they can be easily de-

* See *Journal de Médecine*, vol. xix. p. 458, for a good case of ossification of the tricuspid valves.

tached. Those which are found in the internal surface of the heart are globular, and generally filled with a grumous, or purulent matter. M. Lænnec conceives that these are fibrous concretions, organized in the same manner as the false membranes described when treating of pleurisy.

In diseases of the valves of the heart, the general symptoms of obstructed circulation are present, such as frequent palpitation, a difficulty of breathing, a sensation of extreme oppression and anxiety, a weak and often a very irregular or intermittent pulse, and in many cases, a tendency to faint upon the slightest exertion. Hæmorrhage from the lungs is not a rare accompaniment, and dropsy an usual and a fatal sequel.

It is difficult to suggest a *treatment* for these structural derangements; all remedies may be merely considered as palliatives, to be employed at the discretion of the physician, in checking some prevailing and alarming symptom. Whatever tends to excite the mind of the sufferer, should be studiously avoided, and particular attention at the same time paid to the digestive functions. The use of the lancet will occasionally be required to relieve pain, especially when any tendency to hæmorrhage appears, and these measures, together with the use of either slight stimulants or sedatives, as the prominent symptoms may demand them, form the only plan of conduct we can pursue.

Of the stimulant class of medicines, it matters little what we employ, as their temporary use is merely required to support the system, under the extreme prostration, sometimes induced by the slightest bodily or mental exertion. The administration of a little negus or a mixture containing the compound spirit of lavender and other may be ventured upon, although with excessive caution, as the re-action that may ensue, when the balance of the circulation is again partially restored, is as much to be dreaded, as the state of weakness it is intended to relieve. Of the sedative class of remedies, digitalis has received the greatest commendation in the treatment of diseases of the heart; the effect of this medicine is to lessen arterial action, and in those cases where the beating of the heart is tumultuous, and the palpitation violent, it may be given with great advantage. Opium, hyocyamus, &c. have also had their advocates, but where we need a sedative, they are inferior in usefulness to digitalis. However any particular treatment may be demanded, and however the symptoms may vary, requiring any corresponding change in the remedial measures, a perfect repose as far as circumstances will admit both of mind and body, is an indispensable accompaniment.

Congenital malformations of the heart and large vessels might be divided into many species, but as they all lead only to *two* errors in the function of the organ, Dr. Farré has been content to reduce them to *two*

varieties :—1st. Malformations of the heart or of its arteries, mingling black with red blood; 2d. Malformations of the heart, or its arteries only, impeding the circulation of the blood.

The first kind of malformation may consist of a single heart, that is, of one auricle, one ventricle, and a single artery. In the dissection of such a case, the auricle was divided from its appendix more distinctly than in the natural structure, by a septum, which, however, gave free passage to the blood through a large central aperture. The cavæ opened into the auricle, and the four pulmonary veins into the appendix. There was only one ostium ventriculi. The ventricle single, having a valve more like a tricuspid than a mitral one. From the ventricle one artery, the aorta, furnished with semilunar valves, arose; its two first branches were pulmonary, very large, and close to one another; the third branch still larger, coming off at a right angle from the aorta, and giving origin to the arteria innominata, left carotid and left subclavian arteries, also sending down a single artery to the heart, serving for the coronary arteries. The continuing trunk had the usual appearance of the descending aorta.

In this case the child lived 79 hours after birth; the skin was, for the first few hours, pallid, but afterwards slightly livid.

In the examination of a second case, in which the child lived ten days, the skin being of a blue colour, but the respiration, temperature of the body, and muscular action not materially affected; there was but one auricle, and one ventricle; the aorta sent off a branch in the situation of the ductus arteriosus, dividing into two pulmonary branches. The venæ cavæ and pulmonary veins entered the auricle in their ordinary directions.

In a third case, reported by Dr. Wilson, in the 88th volume of the Philosophical Transactions, the child living seven days, the heart was found in the epigastric region, in a cavity on the superior surface of the liver, and consisted of a single auricle, ventricle, and arterial trunk, which divided into two large branches, the aorta and the pulmonary artery, the latter again dividing into its two branches. Two large pulmonary veins formed a trunk, joining the vena cava, which entered the auricle as usual.

Malformation also exists from some imperfection in the structure of a double heart, which is the most commonly observed. The foramen ovale may be unclosed; it may be dilated, and, as occurred in one instance, with an open ductus arteriosus; this singular case occurred in a female, who lived seventeen years, under the symptoms of dyspnoea, slight cough, palpitations, indolence, faintness on exertion, voracious appetite, great pain, and a sense of weight in the left side; and all these accompanied by a blue colour of the skin. The pulse and the tempera-

ture of the surface were not ascertained. The pulmonary artery, in two recorded instances, arose from the right ventricle, communicated with the left, and formed the aorta descendens, besides giving off its usual branches to the lungs. The ascending aorta arose naturally, but, passing upwards, it terminated in forming the arteria innominata, the left carotid, and the left subclavian. In one case the patient lived nine days; the respiration was hurried, the skin of a dark purple colour, and convulsions preceded death. Morgagni relates a case where the foramen ovale was dilated, and the ostium arteriæ pulmonalis contracted; the patient lived to the age of 16 years, but the skin was livid, the health was always affected, and great debility and dyspnoea prevailed. Dr. William Hunter published a very remarkable case in the sixth volume of Medical Observations and Inquiries, in which the foramen ovale was dilated, the ductus arteriosus open, and the ostium arteriæ pulmonalis impervious. In ten minutes after birth the infant's skin became nearly black, the respiration laborious, and the motion of the heart so violent that it could be seen at a considerable distance, keeping up a constant motion of the præcordia; repeated convulsions ensued before death, on the thirteenth day. Dr. Hunter also relates a case where the ostium aortæ communicated with both ventricles; the pulmonary artery was contracted, and the septum ventriculorum perforated. The patient lived to the age of thirteen. This may be, perhaps, considered as the most frequent malformation.

Under this head may be described a case wherein the septum auricularum was perfect, and the foramen ovale closed; the right and left ventricles equal in muscular substance, and the valves natural; the aorta, of its proper size, arose over the septum ventriculorum, and opened equally into both ventricles. Two apertures in the right ventricle communicated with a very small third ventricle, from which the pulmonary artery, correctly formed and of usual size, issued. The patient lived until fourteen years of age.

Dr. Baillie has described a case of transposition of the aorta and pulmonary artery, the infant living two months; the skin was unusually livid, the surface colder than natural, but the respiration unaffected.

From a review of these cases, as reported by Dr. Farr, it appears that the symptoms may occasionally differ to a remarkable extent, according to the description of the structural derangement; thus, a permanent blue colour of the skin, the blueness approaching to blackness, (in proportion to the diminished size of the pulmonary artery, and of the ductus arteriosus,) is remarkable in some instances; whilst in others, the skin will remain of a pallid hue, proving that if the full proportion of blood be circulated through the lungs, although the red be subsequently mixed with an equal proportion of black blood in the heart, yet

a dark colour will not be imparted to the skin; this fact at present applies only to the infant, as evidence is wanted in its application to the youthful or adult state. In difficult transmission of blood through the heart or its vessels, especially its pulmonary branches, the skin is pallid, transiently livid, of a violet colour, or permanently blue, according as the capillary vessels are more or less filled, but chiefly in proportion as the circulation is retarded through the lungs. The peculiar blue colour is far more characteristic of mingled black and red blood,—the former in excess,—than of impeded circulation, and constitutes the most material part of the diagnosis. A coldness of skin naturally follows the blue colour, both being produced by an over-proportion of black blood. Paroxysms of irregular respiration, screaming, panting; or a continued difficult and laborious respiration, accompanied with a sense of suffocation and cough, likewise set in. The disturbed state of the respiration by paroxysms, appears to be more characteristic of mingled black and red blood; but the continued dyspnœa seems to depend on the difficult transmission of blood through the heart and its great vessels. Palpitation, vehement action of the heart, an irregular, quick, weak, or intermittent pulse, serous effusions into the cavities and cellular membrane, hæmorrhages from the nose, lungs, &c., all varying in degree, and being more or less combined, are discovered in many cases of malformation, and are principally indicative of an impeded circulation. A torpor of the brain, sometimes occasioning syncope, epilepsy, apoplexy, or paralysis, may be attributed to an impeded circulation through the heart, to an accumulation of blood in the brain, and the consequent pressure sustained by that organ; and partly to the want of that renovating power which a due supply of the red blood would impart to the brain. The defective nutrition so frequently remarked in these diseases, varies according to the condition of the alimentary canal, and its dependent organs.

In those malformations of the heart or of its arteries, where the circulation of the blood is *only* impeded, without a structural derangement, the common causes are, either from a contraction of the ostium ventriculi, and a rigidity of the mitral valve; or from the ostium aortæ being narrowed by having two instead of three semilunar valves. The symptoms in these cases may be referred to the same order as some of those already described.

The *treatment* of patients labouring under malformations of the heart, should be precisely the same as that described under the diseases of that organ. In the worst cases, we have no opportunity of attempting relief, as the circulatory system is too imperfectly formed for the support of life, and after a few struggles the contest is resigned; in other instances the system continues its efforts for a few days, or perhaps weeks,

to accommodate itself to the imperfection, but in vain; and the patient sinks after repeated convulsions. When the organization is not so incomplete, life may be preserved for a few years, but generally at the expense of extreme suffering; and there are but few cases on record, where patients have reached the age of manhood under the affliction. The aid that medicine can extend is very feeble, and limited to the relief of the prevailing symptoms; the use of stimulants and sedatives are admissible under the same circumstances as before alluded to under diseases of the heart; and the same tranquillity that is so essential in such cases, is also imperatively demanded in every instance of malformation.

Pericarditis, or inflammation of the membrane surrounding the heart.
—See *Inflammation of the Pericardium*.

ARTERIES, diseases of.—These vessels are subject to the same morbid alteration, and endowed with the same powers of reparation, as soft parts in general, and thus their morbid changes consist in inflammation and its consequences, the effusion of lymph, adhesion, suppuration, ulceration, and gangrene: they are also subject to peculiar diseases dependent on their structure, such as calcareous depositions and preternatural dilatation.

The inflammation subsequent to injury produces an effusion of lymph, which seals the extremity of the divided vessel, and, extending to its internal coat, becomes the basis of adhesion and final obliteration; the same may also take place where disease has extended to the vessel from contiguous parts, proving the tendency of arteries to take on the adhesive inflammation. The inflammation is occasionally propagated along the course of the vessel, invading the middle as well as the internal coat; it has been remarked where no coagulum has been found in the vessel, and therefore supposed to exist as a change effected by transudation after death. Corvisart, however, in his researches, is inclined to think that this appearance is indicative of a peculiar fever that has prevailed in the system. In some instances the lymph becomes the matrix of vessels, and fungous growths and ulcerations are the consequence.

Arteries are subject to chronic inflammation, laying the foundation of various morbid alterations in their coats, such as a thickened or calcareous state, arising sometimes from aneurism, although generally from increased vascular action: in such a state the internal coat becomes soft, thickened, and of a deep red colour, with patches of deeper or less intensity. This chronic inflammation has been variously accounted for, some authors ascribing it to the effects of the syphilitic virus, or to the mercury employed in the treatment of syphilis, whilst others have regarded it as dependent upon scorbutic humours: these opinions, how-

ever, are in a great measure visionary, and are not illustrated by pathological investigation; the causes of chronic inflammation in arteries are similar to those by which other soft parts are brought into the same situation, and where any thickening or calcareous deposits ensue, it is owing to the structure of the vessel rather than to any peculiarity in the nature of the attack.

Ulceration of the coats of an artery seldom takes place without some previous morbid alteration, and usually occurs at the circumference of calcareous or in the centre of atheromatous depositions; when the coats are completely destroyed by ulceration, the blood passes into the surrounding cellular membrane, thus leading to the formation of an aneurism. Pus is rarely seen, from the current of blood washing it away as soon as formed; but it is not improbable that, in common with all serous membranes, pus may occasionally exist in the arteries without ulceration. Passive hæmorrhages, such as apoplexy, hæmatemesis, hæmoptysis, &c., may be occasioned by the opening of the cavity of a vessel, as in the case of vomicae ulcerating branches of the pulmonary artery.

Sphacelation of the coats of an artery is a very rare circumstance, but arteries are involved in the sloughing of surrounding parts, when the blood will coagulate to a considerable distance above the line of sphacelation.

The morbid appearances incidental to the structure of an artery are various: sometimes the internal coat is thickened and converted into a substance resembling cartilage, which, gradually losing its elasticity, cracks, and forms scales hanging into the cavity; this may take place to a considerable extent, accompanied by a deposition of calcareous matter. The semilunar valves are frequently changed into dense fibrous structure, or converted into cartilage, and becoming shrunk and shrivelled, are unfit to act as valves; they are sometimes even ruptured, forming cartilaginous eminences; this appearance often accompanies an increase of the muscular structure of the left ventricle, and in such circumstance there must be a partial regurgitation of blood from the aorta, which, thus kept in constant activity, may cause a dilatation of its parietes. Internal surface of arteries also frequently exhibits a thickened and pulpy structure, like small flattened tubercles, or with the whole surface irregular and fleshy; the latter gives rise to Scarpa's denomination of "the steatomatous condition of an artery;" the elasticity of the artery being destroyed by this alteration, it is lacerated by the impulse of the circulation and aneurism occasioned. Atheromatous matter is sometimes found in the cellular membrane connecting the internal and middle coats, of an opaque yellow colour, slightly elevated from the surrounding surface, either circumscribed with a tubercular appearance,

or continued extensively along the coat; ulceration may take place on their surface, and penetrate to the middle coat, occasioning aneurism, and their extent has been so great as to obliterate the cavity of the vessel.

A peculiar fungus may grow from the semilunar valves of the aorta, similar in appearance to venereal warts on the organs of generation; the same appearance has been observed in the pulmonary artery, and in the mitral and tricuspid valves. These vegetations, as Corvisart calls them, (considering them as syphilitic,) arise from narrow peduncles, and hang into the vessel, having sometimes a broad base.

Calcareous matter is very common in arteries; Biehat supposed it to exist in seven out of ten above the age of sixty, and Dr. Baillie says that it is more common than a healthy state of the system; the appearances vary according to the extent of deposition, presenting white and very small specks, or mixed with a curdy deposit, producing a swollen and earthy condition of the internal coat; irregular in formation, both in longitudinal and circular direction; sometimes forming spiculæ or eminences into the cavity, and also in the arteries of the lower extremities, or occupying the whole circumference of the tube, forming distinct rings connected by the lining membrane. In the early stage this condition is accompanied occasionally by atheromatous matter, sometimes surrounded by ulceration; but they may exist in old subjects without any morbid appearance. Perhaps these coneretions may in general be considered as the natural effects of protracted existence, although this is an assertion liable to exception, as the person of the infant will sometimes afford an example of calcareous deposit, whilst a case of longevity is free from it.

The heart of the young is infinitely more vascular than that of the old, and the decay of years may be partly attributed, in some cases, to a want of a sufficient circulation for the evolution of the nervous power, from the minute arteries being rendered impervious, or their calibres diminished.

Symptoms.—In a deposit in the valves of the aorta, syncope is occasionally produced by the palpitation and irregularity of action; intense pain prevails at the scrobiculus cordis, and underneath the sternum, extending down the arms and giving a sensation of numbness. The great cavities and extremities become dropsical, respiration laborious, accompanied with a violent pulsation in the epigastrium. The *treatment* can only be palliative, and may consist in repeated venesection according to the urgency of the symptoms, and in an extremely cautious regimen.

Calcareous matter in the internal coats of arteries, tending to obstruct the circulation, has been supposed in some instances to have occasioned

mortification in the feet and legs of old people ; such deposition usually occurs in the arteries of the lower extremities ; it is, however, not unfrequent in the aorta, while in the pulmonary artery it is scarcely ever observable. Bichat denies that calcareous matter is ever found in the vessels conveying black blood : but this is not positively the fact, although the circumstance is very rare.

We may now proceed to the consideration of *operations* on the arteries, which consist either in obliterating their cavities by ligature, for the purpose of restraining the supply of blood to an aneurismal tumour, or in cutting down upon and securing an artery in case of wound.

Arteria Innominata.—The question whether the *arteria innominata* can be safely obliterated by means of a ligature, is no longer a matter of speculation. This difficult and hazardous operation has been performed by Dr. Mott.

The subject, a sailor, fifty-seven years of age, was admitted into the New York Hospital, March 1st., 1818, with subclavian aneurism. The tumour continued to increase in size till the 11th of May, when the operation was performed. It was undertaken first with the view of tying the subclavian artery, before it passed through the *sealenæ* muscles, should it have been found in a fit state ; and secondly, to tie the *arteria innominata*, should the former be diseased, or too much encroached upon by the aneurismal swelling.

The following is Dr. Mott's account of the operation. "The patient was placed upon a table of the ordinary height, in a recumbent posture, a little inclining to the left side, so that the light fell obliquely upon the upper part of the thorax and neck. Seating myself upon a bench of a convenient height, I commenced my incision upon the tumour, just above the clavicle, and carried it close to this bone and the upper end of the sternum ; and terminated it immediately over the trachea ; making it in extent about three inches. Another incision, about the same length, extended from the termination of the first, along the inner edge of the sterno-mastoid muscle. The integuments were then dissected from the platysma-myoides, beginning at the lower angle of the incisions, and turned over upon the tumour and side of the neck.

"Cutting through the platysma-myoides, I cautiously divided the external part of the mastoid muscle, in the direction of the first incision, and as much of the clavicular portion as the size of the swelling would permit, and reflected it over upon the tumour. The internal jugular vein was encroached upon by the swelling, which made this part of the operation of the utmost delicacy, from the morbid adhesion of that part of the clavicular portion of the muscle to it, which was detached. I separated this portion of the muscle to as great an extent, however, as the case would possibly allow, to make room for the subsequent steps

of the operation; only a part of the vein was exposed. The sterno-hyoid muscle was next divided, and then the sterno-thyroid, and turned upon the opposite side of the wound, over the trachea. This exposed the sheath, containing the carotid artery, par vagum, and internal jugular vein. A little above the sterno-hyoid, I exposed the carotid artery, and separated the par vagum from it; then drawing the nerve and vein to the outside, and the artery towards the trachea, I readily laid bare the subclavian about half an inch from its origin. In doing this, the handle of a scalpel was principally used, nothing more being required but to separate the cellular membrane, as it covers the artery. I judged it would be very imprudent to introduce a common scalpel into so narrow and deep a wound, especially as it would be placed between two such important vessels or parts as the carotid and par vagum, and where the least motion of the patient might cause a wound of one or the other of them. The proper instrument, in my opinion, for this part of the operation, is a knife, the size of a small scalpel, with a rounded point, and cutting only at the extremity; this was used, and found to be very convenient for this stage of the operation. It can be introduced into a deep and narrow wound, among important parts, without the hazard of dividing any but such as are intended to be cut.

"On arriving at the subclavian artery, it appeared to be considerably larger than common, and of an unhealthy colour; and when I exposed it to the extent of about half an inch from its origin, which was all that the tumour would permit, to ascertain this circumstance more satisfactorily, my friends concurred with me in opinion, that it would be highly injudicious to pass a ligature around it. The close contiguity of the tumour, would of itself, have been a sufficient objection to the application of the ligature in this situation, independent of the apparently altered state of the artery.

"While separating the cellular substance from the lower surface of the artery, with the smooth handle of an ivory scalpel, a branch of an artery was lacerated, which yielded, for a few minutes, a very smart hæmorrhage, so as to fill the wound perhaps six or eight times. It was about half an inch distant from the innominata, and from the stream emitted, was about the size of a crow-quill. It stopped with a little pressure. I can scarcely believe this to have been the internal mammary, from the hæmorrhage ceasing so quickly; though from its situation, it would appear so; and if, from some irregularity, it were not the superior intercostal, it must have proceeded from an anomalous branch.

"With this appearance of disease in the subclavian artery, it only remained for me, either to pass the ligature around the arteria innominata, or abandon my patient. Although I very well knew, that this

artery had never been taken up for any condition of aneurism, or ever performed as a surgical operation, yet with the approbation of my friends, and reposing great confidence in the resources of the system, when aided by the noblest efforts of scientific surgery, I resolved upon the operation.

"The bifurcation of the innominata being now in view, it only remained to prosecute the dissection a little lower behind the sternum. This was done mostly with a round-edged knife, taking care to keep directly over and along the upper surface of the artery. After fairly denuding the artery upon its upper surface, I very cautiously, with the handle of a scalpel, separated the cellular substance from the sides of it, so as to avoid wounding the pleura. A round silken ligature was now readily passed around it, and the artery was tied about half an inch below the bifurcation. The recurrent and phrenic nerves were not disturbed in this part of the operation." The patient went on well for twenty-two days, walked about his ward, and in the open air; on the twenty-third, hæmorrhage occurred to the extent of twenty-four ounces; in consequence, as was afterwards seen, of an ulceration of the coats of the artery. The bleeding returned on the twenty-sixth day, in the evening of which he died, completely exhausted. Professor Pattison thinks that the occurrence of the fatal hæmorrhage in this case must be attributed to the destruction of the vasa vasorum of so large a portion of the artery; and he further remarks, from the facts of the case, that had the arteria innominata been at once exposed and tied, without any reference to the subclavian artery, that the event would have been different.

The Carotid artery may be exposed in two situations in the neck, either above the omohyoid muscle, or below it; in the former situation, the operation is attended with much less difficulty than in the latter, and may be selected in cases of wounds or aneurism of any of the large branches of the carotid, or in aneurism by anastomosis; but the latter must be generally selected in aneurism of the trunk of this artery. The high operation on the carotid may be performed in the following manner: the neck being extended as far as circumstance will permit, make an incision about three inches long, at the side of the os hyoides and larynx, commencing a little below the angle of the jaw, and continuing it as low as the side of the cricoid cartilage; dividing by this incision the integuments and platysma myoides. The fascia of the neck must be next divided in the same direction; it adheres to the sheath of the vessels, and to the veins, which form a sort of plexus in this situation; the director, therefore, ought to be carefully insinuated beneath it, through a small opening made by the knife held in a horizontal direction. The operator should now proceed with great caution among

several small veins that generally appear beneath this membrane, his assistant gently separating the edges of the wound by means of a pair of broad retractors, to enable him, with the blunt end of a director, to detach the cellular connection of these superficial vessels to the sheath. The descendens noni nerve usually lies to the outside of the artery in this situation, and is not endangered in opening the sheath; its exact position, however, is very irregular. The sheath of the vessels is next to be opened, by raising a small portion of it over the artery, in a forceps, and dividing it by cautious touches of the knife held in a horizontal direction. This opening being enlarged, the internal jugular vein will appear distending itself occasionally so as nearly to conceal the artery; and the surgeon, or assistant, having gently pressed this vein, and the par vagum nerve, which is attached to it, towards the mastoid muscle, the blunt aneurism needle may be passed round the artery, taking care to direct it from without inwards, and to keep the end of the instrument close to the vessel, so as to avoid the sympathetic nerve, and some of its cardiac branches, particularly the superficialis cordis, which lies internal to the artery, and close to its sheath. As the end of the needle is made to appear on the laryngeal side of the artery, it is covered by some cellular membrane, which it has pushed before it; by dividing this on the point of the needle, the further course of the ligature round the artery is facilitated. Before he ties the vessel, the surgeon should carefully examine whether any nerve has been included; if so, he had better withdraw the ligature, and again pass round the aneurism needle close to the artery. The ligature being tied, one end of it may be cut off, and the other placed between the edges of the wound opposite its attachment to the artery; the integuments should then be gently closed with adhesive plaster, and the patient, when placed in bed, should lie with his head well supported, so as to relax the muscles and vessels of the neck. The operation may be performed in the inferior region of the neck in the following manner:—the head and neck being somewhat flexed, so as to relax the sterno-mastoid, hyoid, and thyroid muscles, make an incision about three inches in length parallel to the inner edge of the mastoid muscle, commencing opposite the cricoid cartilage, and terminating at a little distance above the sternal end of the clavicle; by this incision, the integuments, platysma, and superficial fascia, are divided; the edge of the mastoid muscle will be then exposed, and close to this a very considerable vein is generally situated. The sterno-mastoid muscle and this vein, are to be drawn outwards; and the sterno-hyoid and thyroid muscles inwards; the omo-hyoid muscle will be now seen crossing the neck near the upper extremity of the wound; this muscle is connected to the sheath of the vessels by the deep cervical fascia, which in this

situation, is thin but strong; by carefully dividing this membrane below the omo-hyoid muscle, the sheath of the vessels will be exposed, the descendens noni nerve is here inclining to the tracheal side of the artery, and may be drawn in that direction with the sterno-thyroid muscle; the sheath must now be opened in the same cautious manner as before recommended. The jugular vein, by its sudden and irregular distention, has been found to embarrass the operator, not only by nearly concealing the artery, but also, the great danger of wounding it in opening the sheath; an assistant ought, therefore, to make gentle pressure on this vessel, both at the upper and lower part of the wound, for it becomes distended in both these directions, from below, by the regurgitation of blood from the right auricle of the heart, and from above, by that fluid descending from the head and neck; the vein and par vagum being then pressed to the outer side, and the muscles held apart by an assistant, the aneurism needle is to be cautiously pushed round the artery from without inwards, taking care to avoid the inferior thyroid artery, the recurrent and sympathetic nerves which lie behind the sheath; and, if operating on the left side, to remember the proximity of the œsophagus internally, and of the thoracic duct posteriorly and externally.

The external Carotid artery may be tied near its origin, without endangering any important part, or without obstructing the internal carotid. An incision made in the same direction and to the same extent, as recommended in the description of the high operation on the common carotid, will enable a surgeon to expose this vessel below the digastric muscle, so as to pass a ligature around it; this may be necessary in operations about the upper part of the neck, such as the extirpation of tumors about the angle of the jaw, &c. This artery may be also tied above the digastric, between it and the parotid gland, by an incision through the integuments and fascia from the lobe of the ear to the corner of the os hyoides; the digastric and stylo-hyoid muscles will be seen passing across the artery near the inferior end of the wound, and then, by depressing these muscles, and separating them with the handle of the knife from the parotid gland, the external carotid will be brought into view, and a ligature can be passed around it. If, however, it be true that the adhesive inflammation cannot take place in any artery unless an internal coagulum of blood be formed, (an assertion which admits of doubt,) and if this cannot occur when a large artery proceeds from the trunk near the situation of the ligature, we cannot expect much success from the operation of tying the external carotid, as the ligature must be applied very close to the common carotid in order to avoid the thyroid or other primary branches, if we wish to tie it before it gives

off any. The operation has, however, been performed without a secondary hæmorrhage ensuing.

In tying the *Lingual artery*, the patient is to be placed on a chair, with his hands reclining backwards on an assistant, who should keep the lower jaw fixed. An incision commenced over the body of the hyoid bone, is to be carried outwards, and a little upwards, or towards the mastoid process of the temporal bone, for two inches. By this incision, the skin and platysma myoides being cut through, the cervical fascia is brought into view, over, or sometimes under which a vein passes, which is to be drawn aside; if this cannot be done it should be tied, divided, and dissected up. The fascia being divided to the same extent as the external wound, the posterior portion of the digastric muscle may be drawn downwards and outwards; when the lingual artery can easily be felt resting on the genio-glossus over it, on which the lingual nerve passes. After dividing a few fibres of the hyo-glossus, a ligature may be passed round the artery, as it runs along the superior part of the bone of the hyoid bone.

In performing this operation, care must be taken to avoid cutting the lingual nerve, and as the superior thyroid artery passes near it, the operator should guard against taking up that vessel in mistake for the lingual.

The surgeon may be required to tie the *Subclavian* in cases of wounds of the axillary artery, or, in cases of aneurism immediately below or behind the clavicle. As yet, the records of surgery do not furnish many cases of success attending this operation; they are, however, sufficiently numerous and satisfactory to prove, not only the practicability of the operation, but also, its expediency in many cases of aneurism, in which an operation is not contra-indicated by constitutional complaints, or rendered impracticable by those local obstacles, which in some cases have proved insurmountable, and which have been caused by the displacement or altered relation of different parts, in consequence of the long continuance or rapid extension of disease. From such accounts, however, our conclusion is obvious, that the operation ought not to be delayed, and that as soon as the disease is fully established, and is increasing, any delay is dangerous, and that if the operation be performed early, there is no peculiar reason to dread an unfavorable issue.

The subclavian artery may be tied on either side of the neck during life, after it has passed the scaleni muscles, with great facility, provided the clavicle have suffered no displacement. A ligature can also be passed around the right subclavian artery before it arrives at the scaleni muscles; this operation may be denominated the internal operation of tying the right subclavian artery, in contra-distinction to tying the artery after it has passed the scaleni, which may be named the external operation,

and which may be performed with equal ease on either side of the neck. The steps of the external operation, the object of which is to enable the surgeon to pass a ligature around the subclavian artery, in the third stage of its course, that is, as it lies on the first rib, may be now detailed.

The patient should be placed upon a table in a horizontal position, with the arm and shoulder depressed as much as the circumstances of the case will permit ; the surgeon is then to divide the integuments immediately above the clavicle from the external edge of the sterno-mastoid muscle to the anterior margin of the trapezius ; (in some cases the edges of these muscles are almost united, when it will be necessary to cut a few of their fibres ;) the edges of this incision being separated, the platysma-myoides and cervical fascia are to be divided on a director to the same extent ; the external jugular vein will then be seen, and so close to the mastoid muscle that it had better be pressed towards the *tracheal* side of the wound ; in some cases, however, the vein lies more outwardly, and may be drawn towards the trapezius muscle ; a quantity of loose cellular membrane is next to be cautiously torn through with the blunt extremity of the director ; the omo-hyoid muscle will then be observed at the lower part of the wound, ascending obliquely from the clavicle to the mastoid muscle, and forming the acromial side of the small triangular space before described ; this muscle sometimes lies very close to the clavicle, and must be drawn upwards and outwards towards the trapezius, or, if deemed necessary, it may be divided. The surgeon should next tear with his nail, or with the end of the director, the thin fascia which lies behind the omo-hyoid, and which is connected to the scalenus muscle ; the acromial edge of the latter muscle may then be seen or felt, and by passing the finger along this to the rib, the subclavian artery will be distinguished either by its pulsation, or by its peculiar feel. The aneurism needle may then be passed around it, and by directing the point of this instrument from below and from before, upwards and backwards, the vein will be secured from injury, and the nerves are so distinct they may be readily avoided. The prominence of the clavicle will sometimes prevent the needle being passed from before backward ; the surgeon must then introduce it from above and from behind, passing it round the artery, and taking care not to injure the subclavian vein, or any of the other veins in the vicinity.

The *Axillary artery* may be exposed in two situations, namely, at the lower and upper part of the axilla ; in either situation it may be necessary to tie this artery in cases of wounds or aneurism of the upper part of the brachial artery. These operations on the axillary artery may be distinguished by the terms inferior and superior ; the former can be easily performed, and is nearly similar to that of tying the brachial

artery ; the latter, however, is extremely difficult and dangerous, and in very few cases only ought to be preferred to the comparatively easy operation of tying the subclavian artery external to the scaleni muscles. The axillary artery may be tied, in the inferior part of its course, in the following manner : the patient should be laid upon a bed or table ; the arm separated from the side, and the hand supinated ; make an incision about two inches in length through the integuments and cellular membrane, over the prominence of the head of the humerus, and between the tendons of the pectoralis major and latissimus dorsi, but a little nearer to the latter ; the median nerve and axillary vein will be then exposed ; the former may be drawn to the radial, the latter to the ulnar side of the artery ; bending the fore-arm will relax the nerves, and by detaching the surrounding cellular membrane with the finger or a blunt instrument, an aneurism needle may be passed round the artery from the ulnar to the radial side. In this part of the operation every precaution must be taken to avoid injuring the veins or nerves, their relation to the arteries not being uniform : sometimes a nerve will cross the artery, and in place of one large vein, there may be two or three accompanying the artery, one on each side, and one in front.

The superior operation may be performed in the following manner : the patient being seated, with the shoulder of the affected side inclined backwards, an assistant should be placed behind the patient, with instructions to compress the subclavian artery in the event of hæmorrhage ; a semilunar incision is to be made, about three inches long, through the integuments, commencing about one inch from the sternal end of the clavicle, and extending towards the acromion process as far as the anterior edge of the deltoid muscle, avoiding the cephalic vein and the thoracic-acromialis artery ; the clavicular portion of the pectoral muscle thus exposed is to be divided in the same direction, and to the same extent, as the external wound ; the flap thus formed being everted, and some loose cellular membrane being detached, the superior edge of the lesser pectoral muscle will be exposed ; in this stage of the operation several branches of the thoracic arteries are in danger of being wounded. A director should then be insinuated beneath the strong fascia extending from the subclavian muscle to the coracoid process, and a portion of the fascia divided ; some loose cellular membrane and a few small blood-vessels being detached with the blunt extremity of a director, the axillary vein will be exposed ; this vessel should be pressed inwards towards the ribs, and the artery will be felt or seen pulsating ; it must be carefully detached from the nerves for a short distance, and the aneurism needle passed under it, the needle being directed from the thoracic to the acromial side. In applying the ligature, it is to be recollected that one of the large nerves of the plexus inclines to the front of

the artery, and having a pulsation communicated to it, might be mistaken for the artery itself.

It may be required to tie the *Radial artery* in any part of its course in consequence of aneurism, or of wounds either of the trunk of the artery or of some of those branches which are distributed to the thumb and palm of the hand, particularly of the *superficialis volæ*, or of that large branch which often runs in the fold of integument between the thumb and index finger.

It may be tied in any part of its course; in the middle and inferior third of the fore arm with facility, as in those situations it is almost superficial, and its pulsation can be felt; but in the superior third it is attended with some difficulty, as the artery is overlapped by the *supinator longus* and *pronator teres* muscles: it may, however, be tied in this situation, by making an incision through the integuments about three inches long, commencing a little below the bend of the elbow, and extending it obliquely downwards and outwards a little to the radial side of the middle line of the fore arm, avoiding the branches of the median vein. The fascia of the arm is next to be divided in the same direction as the external incision; the *supinator longus* can then be separated from the *pronator teres*, and pressed towards the radial side of the wound; the deep fascia of the arm being thus exposed, is also to be divided, and the artery, with its accompanying veins, are brought into view; the veins must be carefully detached from the artery.

The musculo-spiral nerve in this situation lies to the radial side of the artery, and at some distance from it; the aneurism needle can be easily passed under the vessel, and it should be directed from its radial to its ulnar side.

The radial artery may be tied in the middle third of the fore arm by making an incision two or three inches in length over the ulnar edge of the *supinator longus* muscle; then by dividing the two layers of fascia, as in the last described operation, the artery will be exposed, and the aneurism needle may be passed under it from its radial to its ulnar side, avoiding the veins and the musculo-spiral nerve, which in this situation lies to the radial side, and very near the artery.

It may be tied in the inferior third of the fore arm by making an incision two or three inches long at the radial side of the tendon of the *flexor carpi radialis*; the fasciæ are to be then divided as in the

operation and the *external Iliac artery*, Mr. Abernethy pursued the following method: the patient being placed upon a table in a horizontal position, an incision three or four inches in length was made through the integuments of the abdomen, in the direction of the external iliac artery: this incision was situated about an inch and a half from the anterior superior

spine of the ilium, towards the linea alba, and nearly an inch on the outside of the abdominal ring; the lower extremity terminating about half an inch above Poupart's ligament. The sides of this incision being separated, the aponeurosis of the external oblique muscle was exposed, and divided throughout the extent of the external wound, and the finger then introduced underneath the inferior margin of the internal oblique and transverse muscles, so as to protect the peritoneum, whilst these muscles were divided with a knife or probe-pointed bistoury. The finger was then passed beneath the peritoneum, and this membrane pushed upwards and inwards, by the side of the psoas muscle. The external iliac vein is situated on the inside of the artery, and the psoas muscle lies between the artery and the anterior crural nerve. The artery and vein are connected together by dense cellular membrane, which was separated with the nail, (or it may be cautiously divided with a knife,) so as to enable the operator to introduce the point of the aneurism needle between the artery and vein, and bring it out on the opposite side of the former; the ligature which, as thus conveyed round the artery, being secured, the wound was closed with strips of adhesive plaster: on placing the patient in bed, the thigh was bent upon the pelvis, so as to place the artery in a relaxed condition. The advantage of this mode of performing the operation is, that the external iliac artery may be tied very high up in the abdomen; it is therefore peculiarly applicable to cases of inguinal aneurism, in which the tumour has extended as high as Poupart's ligament, and where we are desirous to tie the artery at some distance from the disease. Sir A. Cooper, in performing this operation, makes a semilunar incision, the convexity of which looks downwards and outwards, through the integuments in the direction of the fibres of the aponeurosis of the external oblique muscle; one extremity of this incision will be situated near the spine of the ilium; the other will terminate a little above the inner margin of the abdominal ring. The aponeurosis of the external oblique muscle will be then exposed, and is to be divided throughout the extent and in the direction of the external wound; the flap which is thus formed, being raised, the spermatic cord will be seen passing under the margin of the internal oblique and transverse muscles.

When the spine in the fascia which lines the transverse muscle, through between the anterior superior spine of the ilium, the middle space between the pubis; the epigastric artery runs precisely along the inner margin of this opening, beneath which the external iliac artery is situated. If the finger, therefore, be passed under the spermatic cord through this opening in the fascia which lines the transverse muscle, it will come into immediate contact with the artery, which lies on the outside of the external

iliac vein. The artery and vein are connected together by dense cellular membrane, which must be separated, to enable the operator to pass a ligature, by means of an aneurism needle, round the former.

According to this plan, this operation may be performed with very little disturbance to the peritoneum, and but little injury to the abdominal parietes; the artery lies very superficial, immediately above Poupart's ligament, and hence the operation, according to Sir A. Cooper's plan, is more easily and expeditiously performed, particularly in a robust or corpulent person, than that adopted by Mr. Abernethy, and may, therefore, in general be preferred.

The operation of tying the *internal Iliac artery* may be performed in the following manner: place the patient on his back, and bend the lower extremities on the trunk, to relax the abdominal muscles; an incision three or four inches long is to be made through the integuments of the lower part of the abdomen, parallel to the epigastric artery, that is, in a line drawn from the centre of Poupart's ligament towards the umbilicus; the inferior extremity of this incision may terminate about an inch above Poupart's ligament, so as not to endanger the spermatic cord, and the superior extremity may end at the outer edge of the rectus muscle. The three laminæ of the abdominal muscles are next to be cautiously divided on a director to the same extent; the fascia transversalis may be then torn through with the finger, and the peritoneum can be easily detached from the iliac fossa towards the pelvis; this part of the operation will be facilitated if the patient's bowels have been previously emptied by a smart cathartic. If the finger be now passed to the inner side of the cavity which has been thus formed, the pulsation of the external iliac artery will be felt, and by following this to its origin, or towards the spine, the internal iliac will be discovered lying internal and rather posterior to it; the origin of the internal iliac will be found nearly opposite the centre of a line drawn from the anterior superior spinous process of the ilium to the umbilicus. Then with the nail of the index finger, or the eye of a bent probe, this artery may be separated from its accompanying vein, which lies behind it. The sides of the wound should now be held asunder by two broad spatulæ, slightly curved, and the aneurism needle can be carried around the internal iliac artery, directing it from within outwards, or towards the psoas muscle, taking care to avoid the ureter and peritoneum internally, and the external iliac vessels externally; if an assistant press these vessels outwards and backwards towards the iliac fossa, they will be more effectually protected, and the part of the operation will be facilitated.

A ligature may be passed round the common iliac artery by an operation similar to that just described.

To expose the *Gluteal artery*, the patient should be placed on his face,

the toes turned inwards, and an incision commenced about one inch below the posterior spinous process of the ilium, and about an inch external to the side of the sacrum, continuing this incision about three inches in an oblique direction towards the great trochanter, through the integuments and subjacent cellular membrane down to the glutæus muscle; the fasciculi of this muscle may be then separated in the same direction, and to the same extent as the external wound, dividing, if requisite, a few of its fibres; the sides of the wound should be then separated by two broad retractors; a dense aponeurosis, which will next appear, must be freely divided, or torn through with the finger, and the branches of the gluteal artery will be exposed; by separating some loose cellular membrane, the trunk of the artery may be seen escaping through the upper and anterior part of the sciatic notch, and lying close to the bone, when a curved aneurism needle may be passed under it, taking care not to include the surrounding nerves and veins in the ligature. In a fat or very muscular person this cannot be an easy operation, on account of the great depth at which the artery lies from the surface, the unyielding nature of the surrounding parts, and the numerous vessels that must be cut during the operation, the bleeding from which will so obscure the view of the deep-seated parts, as to render it difficult to distinguish one structure from another; indeed it is hardly practicable except in cases of wounds, or in a very emaciated person; under any other circumstances, the operation of tying the internal iliac artery to that of the gluteal may be preferred.

The *Femoral artery* may be tied in any part of its course for the cure of popliteal aneurism; one of two situations, however, is generally selected, either the middle third, or the superior third of the thigh; the former situation was that selected by Mr. Hunter, and may be named the inferior operation; the latter is that which is now generally preferred, and is named the superior.

In the superior operation of tying the femoral artery, our object is to pass a ligature round this artery below the origin of the profunda, and in that part of its course in which it is very superficially covered, that is between Poupart's ligament, and the point at which the sartorius crosses the adductor longus muscle, and as near to this point as possible, that the circulation through the profunda artery may not interrupt the adhesive process at the seat of the ligature; this situation was first recommended by Professor Scarpa. In this operation, the patient being placed in a horizontal posture, the line of the sartorius muscle may be observed, which will be more obvious if the limb be turned somewhat inwards; this expedient, therefore, may in the first instance be resorted to, in order to enable the operator to ascertain the course of this muscle; an incision is then to be made through the integuments about two inches

and a half long, commencing two inches below Poupart's ligament, or below the midpoint between the symphysis pubis and the spine of the ilium; this incision is to be continued downwards and inwards in the course of the artery, and along the inner edge of the sartorius; the saphena vein will lie on the internal side of this incision; not unfrequently, however, it receives two or three large branches in this part of its course, which come from the anterior part of the thigh; these branches are in danger of being wounded, but may be avoided by cautiously dividing the cellular membrane beneath the integuments. A director should next be insinuated beneath the fascia lata near the lower part of the wound, on which this aponeurosis is to be divided, to the extent of about an inch, when the edge of the sartorius muscle will be exposed. A small portion of the sheath of the vessel is then to be elevated in the forceps, and divided by cautious touches of the knife held in a horizontal direction. The vein is here behind the artery, and is not in general visible; part of it, however, may be sometimes seen on the inner side of the artery, the branches of the anterior crural nerve being on its iliac side, although, frequently one small nerve passes in front of the artery. The artery and vein are next to be separated from each other; this is often attended with some difficulty, owing to the intimate adhesion of their coats; a blunt instrument, however, such as the end of a blunt aneurism needle, or of an eye probe, may be insinuated between them, and should then be directed from within outwards, as the vein will thus be more perfectly secured from injury, and the nerves on the outer side of the artery can be easily avoided. The ligature having been tied and one end cut close, the wound is to be gently closed by adhesive plaster, and the patient kept perfectly quiet, with the limb in the flexed position, so as to avoid any tension on the vessel.

The Popliteal artery may require to be tied in case of a wound of it, or of the posterior tibial artery, or of aneurism of this latter vessel, situated high in the leg.

In order to pass a ligature round the popliteal artery in the upper part of its course, in the living subject, the patient may be placed either in the horizontal position on his back, with the thigh laid on its outer side and the leg bent, or he may be laid on his face, and the limb extended; in either position, an incision of about three inches should be made through the integuments, along the posterior or external margin of the semi-membranosus muscle; the fascia lata is to be divided to the same extent, and the ~~drawing~~ or drawing inwards the edge of the semi-membranosus, the finger will directly feel the pulsation of this artery. The posterior crural nerve is in this situation so far to the ~~vein's~~ or fibular side, that it is not endangered in the operation; the vein is to be cautiously separated from the artery, and pressed to the outer side, when

the aneurism needle may then be insinuated between it and the artery and carried round the latter from without inwards.

The *anterior Tibial artery* is liable to be wounded on the instep, or a little above the ankle-joint ; in either of these situations it may be exposed and tied ; it may also be required to be tied in the leg in case of wound or aneurism. To tie this vessel above the ankle-joint, we should flex the foot in order to relax the extensor tendons ; an incision about two inches and a half long should be made through the integuments in the course of the artery, which may be ascertained by feeling its pulsation, or by observing the line of the tendon of the extensor pollicis proprius, on the fibular side of which it lies ; the fascia of the leg should be next divided to the same extent, and it may, in some cases, be advisable to make a short transverse division of this fascia ; the tendon on each side should then be held aside with a broad curved retractor, and, on removing a little cellular membrane, the nerve is brought into view, beneath which lies the artery with its *venæ comites* ; these are to be separated from the artery, and the aneurism needle passed round the latter.

The *posterior Tibial artery* may require to be tied in case of a wound in the sole of the foot, which has divided some large artery in that region ; also in case of a wound behind the internal ankle, in which the posterior tibial artery itself has been injured, or in case of aneurism in consequence of this wound. When aneurism of the posterior tibial artery is seated high up in the leg, it will be necessary to tie either the popliteal or femoral artery. In case of wounds in the sole of the foot, in which we require to tie the posterior tibial artery, the most favourable situation is between the malleolus internus and the heel ; to expose the artery in this situation, a semilunar incision should be made, of two inches and a half in length, through the integuments, commencing near the tendo-achillis, and continuing it downwards and forwards nearly midway between the heel and ankle, a little nearer to the latter. The integuments being divided, the fascia of the leg is exposed, which should be cut to the same extent ; a little cellular membrane must now be removed, and a very strong aponeurosis is exposed ; this fascia must be cautiously divided, and the sheath of the vessels will be exposed, and on being opened, the *venæ comites* are to be separated from the artery, and the aneurism needle carefully passed round the latter, directing it from the heel towards the ankle to avoid the nerve, which, in this situation, is sometimes very large, and close to the artery.

DISEASES OF VEINS.—The veins, like the arterics, are liable to the same changes which are common to soft parts in general but their membranous lining is peculiarly susceptible of inflammation. When a vein is wounded, the subsequent inflammation will sometimes

extend to the principal venous trunks, and even to the membrane lining the cavity of the heart. The obliteration of the cavity of the vein, by an effusion of coagulating lymph, is not an unusual sequel to inflammation, and infinitely a more favourable one than the secretion of pus, which occasionally occurs, when a chain of abscesses will form in the course of the vessel, give rise to great constitutional irritation and probably prove fatal under symptoms bearing a strong resemblance to those of typhus fever. Such circumstances have followed a slight puncture in the femoral vein, in an operation for popliteal aneurism, the application of a ligature to the same vein after amputation, when the inflammation has rapidly extended to the iliac trunks, or even succeeded after amputation, when the vein has not been secured; the excision of a portion of the saphena vein for the relief of varicose ulcer has been attended with similar results, which have likewise, in a few cases, arisen after the performance of venesection in the fore-arm. Veins are liable to the ulcerative process, which, by exposing their cavities, may give rise to hæmorrhage, although the adhesive inflammation generally preceding ulceration, the obliteration of the cavity will prevent its occurrence. When sphacelation takes place, the cavity of a vein, like that of an artery under similar circumstances, is filled up for some distance by a plug of coagulum, which prevents hæmorrhage, upon the separation of the mortified part.

Veins are occasionally ruptured, being without previously diseased, by muscular exertions or external violence.

The venous, like the arterial system, is capable of carrying on a collateral circulation, when any portion has been obliterated, and this to a remarkable extent, the blood having been conveyed to the heart by the lumbar veins and the vena azygos, after the cava had been rendered impervious.

The principal disease of the veins, to which the surgeon is called, is that denominated *varix*, or *phlebectasis*, as it has been latterly termed in the French schools. This disease is to veins what the true aneurism is to the arteries, and consists in a dilatation in one or more parts until a plexus of varices is usually formed. There is unquestionably a predisposition to this affection, independently of those circumstances which have been assumed as its direct causes; in a valuable article on the disease by Dr. Bushe, of New York, contained in the fifth number of his *Medico Chirurgical Bulletin*, it appears that out of a hundred and eighty-eight occurrences of cases that had fallen under his observation, twenty did suffer under the same disease. ^{those near relatives had laboured in the same situation} of the dilated veins, observes, that ^{the author in detailing the disease} the disease commenced in the superficial veins of the legs; in thirty-three

in the saphena vein of one leg; in twenty-two, in the saphena vein of the left leg; in eighteen, in whom the disease commenced in one leg, and appeared afterwards in the other; in five, in whom the affection commenced in both legs simultaneously; in thirty-seven cases, in which the veins of both legs were affected, the hæmorrhoidal vein also diseased; in nine, the hæmorrhoidal veins were first affected; in eleven, in which the superficial veins of the leg were concerned, the spermatic, as well as the hæmorrhoidal veins were diseased; in two, the spermatic veins were *first* affected, in seven instances, in which the veins of one or both legs were affected, the epigastric, together with the spermatic and hæmorrhoidal veins were diseased; in one, the epigastric was *first* attacked; in eight, in which the superficial veins of the leg were primarily diseased, the external jugular, together with the epigastric, the spermatic, and the hæmorrhoidal were included; in one case, in which the veins of the left leg were first affected, the cephalic of the corresponding arm, together with the external jugular, the spermatic, both epigastric, and the hæmorrhoidal veins were diseased. In two individuals the epigastric veins were *alone* diseased; in five, the external jugulars were *alone* affected; in twenty-three, the spermatic veins of one or both sides were *alone* concerned, and in thirty-eight, the hæmorrhoidal veins were *alone* diseased. Dr. Bushe concludes the analysis by asserting, that in the *post mortem* examination of many persons who labored under varicose veins, he was convinced, that in the mass of them, the internal jugular, innominatæ, pulmonary, hepatic, mesenteric, emulgent, iliac and cavæ, have been larger and thinner than in other cadavers of the same stature and age.

We avail ourselves of the researches of this eminent surgeon in the further consideration of this subject, as to the exciting causes, the progress of the different species, and the treatment of this disease.

The exciting causes may be traced to any circumstances preventing the return of venous blood to the centre of the circulation, more especially when a predisposition to the disease exists in the system; thus, if in consequence of gestation, two women labour under dilatation of the superficial veins of the leg, and one of them, by the laxity of her venous system, is predisposed to phlebectasis, after delivery, the venous dilatation will remain and increase; whereas, in the other, in whom there is no predisposition, the dilatation will subside. The practice of playing on wind instruments may also operate as an exciting cause to dilatation of the jugulars. A cause of phlebectasis, little attended to, is *acute inflammation*: this inflammation may take *clap*, although in some cases it is *chronic*, and is usually *purulent*. The disease is more common in the Irish than in the English peasantry, perhaps, in consequence of the

practice of walking bare-footed, in all weather, and at all seasons ; their feet are thus continually cold and wet, and the consequence is, hypertrophy of the middle tunics of the venous branches, and which rapidly extends towards the trunk. Jockeys and postillions are very liable to this disease, in consequence, it is said, of the boot-garters which are firmly fastened below the knees ; the attentive examination of one another, however, has led him to imagine that this is not the cause of the occurrence of the disease in these classes, but that it may rather be produced by the pressure and friction, which, from the peculiar seat they necessarily take, is thrown forcibly on the internal saphena, where it traverses the upper part of the leg and lower part of the thigh ; and, moreover, these causes act very powerfully, as from the contraction of the muscles of this extremity, which he alone employs in elevating the body, the blood is forced from the deeper seated into the superficial veins.

On the Progress of the different species of Phlebectasis.—This disease may commence in two different ways, either by dilatation or induration. It begins by dilatation, when the predisposing causes alone operate, when the recurrent circulation is retarded, when both are combined, or when injury causes active inflammation, and total or partial obliteration of the main vein. It also commences by induration from sub-acute inflammation, induced by cold, wet, or injury. Dilatation, for the most part, commences at the extremities of the veins, in consequence of the pressure of the blood being an obstacle to the recurrent circulation. Not unfrequently, however, the dilatation commences in a trunk, and then it is, where a larger vein is emptying itself into a deeper seated one, as the greater saphena into the femoral, or the lesser saphena into the popliteal. This is induced, first, because the friction is greater in such situations than elsewhere, in consequence of the meeting of the currents, by which the circulation is necessarily retarded, and secondly, by the pressure of blood directed on the saphena, through the medium of muscular contraction. However, it matters not, whether the dilatation commences in the extremities or trunks of the veins, for both will soon be similarly affected.

In proportion as a vein dilates, so it becomes tortuous, or is extended in a longitudinal as well as in a transverse direction. In proportion to its tortuosity, so is the circulation through it retarded, because the surface of friction is increased. This unnatural state of the vein gives rise to inflammation, and the consequence is, thickening and induration of the middle tunic, so that the vein, when removed, does not collapse from atmospheric pressure, and in every respect, except the absence of circular fibres, resembles an artery. This hypertrophy so destroys the power of accommodation in the vessel, that the blood is much retarded, and thus, by producing an increase of distention, giving rise to an

augmentation of disease. In some individuals, this change takes place much more rapidly than in others..

When this disease has existed for some years, the veins become dilated in many places. These dilatations take place, for the most part, at those points where the veins are enervated, because, here the surface of friction is increased, and the curves mechanically obstruct the free transmission of blood. The dilatation is always partial, at least it never occupies the whole circumference of the vein; it has always been either external or lateral,—and this can easily be accounted for, by the greater pressure which these parts must necessarily undergo during the contraction of the muscles. Some authors have asserted that these dilatations are always in the site of the valves; this may be the case in a number of instances, but Dr. Bushe does not consider that they depend either upon rupture of the valves or the internal membrane: he has frequently observed that the valves were stretched to a mere line; but has never been led to believe, that even one of them had been ruptured or given rise to the dilatations; for, in repeated examinations of the dead, he observed in well-formed cases, more dilatations than valves, and that the dilatations existed where the valves did not; and, in fact, the condition of the valves in the different cases, appeared to depend on protracted disease, rather than accident.

The parietes of these dilated venous portions are thinned in proportion to the amount of dilatation; for the strong pressure occasioned by the accumulation of blood in the same, creates absorption, and the superincumbent cellular tissue and skin suffer in the same manner. When this process is further advanced, the outer and middle venous tunics, the subcutaneous cellular tissues, are removed by absorption, and the inner tunic of the vein adheres principally to the back of the dermis. Finally, if proper means of relief be not adopted, the absorption continues until the internal tunic of the vein and dermis are destroyed, when alarming hæmorrhage ensues. Soon after the general venous dilatation commences, the internal tunic increases so much in extent, that it becomes plicated; and where the dilatation is general, the plicæ follow a longitudinal direction; but when the dilatation is partial, and abruptly augmented, they pursue oblique courses, and, in excessive cases, are obliterated. When the disease commences by induration or hypertrophy of its branches, dilatation soon follows, because the blood is retarded in proportion as these branches resist the pressure of the atmosphere, and consequently, the contraction of the muscles forces into these rigid tubes blood, which they do not easily expel. Add to this, that in proportion as the diseased veins cease to circulate their contents, so are the healthy veins in the neighbourhood over-worked, and like a heart, which has too much to do, become affected with

hypertrophy and dilatation. When the induration takes place in the trunk, as in postillions, it induces dilatation of the branches, by resisting more or less, according to the thickening of the venous walls, the return of the blood. The celebrated clinical surgeon, Delpech, has treated of coagulation in varicose veins, and has asserted that the coagula act on the inflamed parts, as foreign bodies, and produce ulcerations; but that hæmorrhage does not ensue, because the veins are obliterated.—(*Precis des Maladies Chir. tom. ii.*)

Dr. Bushe, in admitting that in some few cases the blood does coagulate, does not assent to the foreign influence claimed for it by Delpech. When a ligature is applied to the saphena, do we observe such changes immediately about it? Do such changes ensue when an artery is tied? Are they observed in the chambers of the heart, when coagulation has taken place to a considerable extent before death? Indeed, we have no proof, direct or analogical, in favor of his assertion. To settle the point to his satisfaction, in seven cases where the saphena had been varicose along the calf of the leg, he placed two ligatures, as light as he durst, without cutting off the circulation of the limb, one below the calf of the leg, and the other below the knee, and continued the application from twenty-four hours to a week, without being able to produce an ulcer in the intermediate space.

Treatment.—In consequence of an enlargement of the veins, the leg at one time becomes inflamed and ulcerates; and, at another, painful and œdematous. A variety of remedial plans have been proposed; some surgeons have enjoined quietness to the limb, at the same time making pressure on the diseased veins, and keeping the bowels constantly under the action of purgative medicines. The application of a ligature to a venous trunk, particularly to the saphena, its excision and decision have all been practised, and with various success. We shall now proceed to the consideration of each of these methods, as detailed by Dr. Bushe.

Ligature of the Saphena.—Though many good surgeons performed this operation before Sir E. Home, none of them gave it the currency which it obtained through his recommendation; but from the common occurrence of phlebitis after the operation, it has nearly fallen into disuse. Phlebitis has undoubtedly arisen from the injury inflicted on the tunics of the vein by the pressure of the ligature. To avoid such evils, and, at the same time, to accomplish the desired end, our author has practised, with perfect success, the following operation:—An incision being made, for an inch or more, along one side of the vein, a suture needle was passed beneath it, and through the integuments on the opposite side; then the ligature was tied in a loop on the cutaneous surface, so as to keep the sides of the vein in contact, without produc-

ing the slightest laceration. On the sixth day the ligature was withdrawn.*

Incision.—Mr. Brodie, in the *Medico-Chirurgical Transactions*, recommended the division of the larger groups of the dilated venous branches, as the most appropriate operation, because he found that the branches could bear with impunity an injury which the trunk could not. If Mr. Brodie had not seen bad consequences succeed to the operation he has performed and recommended, they have, nevertheless occurred; and phlebitis and sanguineous extravasation terminating in suppuration, and even both combined, succeeded. These consequences may, however, be avoided by operating as follows:—Let the patient be placed in an erect position, on a firm table, of the ordinary height; direct him to bear all his weight on the diseased leg, and merely to balance himself with the other, which he should rest in a pointed direction on the table, about a foot anterior to the centre of gravity. By this position the diseased veins are rendered turgid, and the inside of the leg is fully exposed; two points absolutely necessary for the happy completion of the operation. The surgeon should then take a compress, three inches in length, and one in breadth, and place it transversely, immediately above the group of veins which he purposes to divide; and an assistant standing on the outside of the leg to be operated on, should not only make pressure on the pad, but on the internal half of the limb. By this procedure, the entrance of air is prevented, a circumstance rendered probable by the rigidity of the diseased veins. The operator should use a knife an inch longer, more curved, and less thick and broad, than that recommended by Mr. Brodie. Standing before or behind the patient, as from the situation of the veins he may find it most convenient, he introduces the knife in the ordinary way, and from the length of the instrument, he can easily bring its extremity to the distal side of the group, a point which is not so easily effected with the instrument termed Brodie's knife. This step of the operation being achieved, the surgeon should direct the edge of his knife either obliquely upwards or downwards, as he may find it most convenient, and then withdraw it, at the same time elevating the handle, or increasing the angle between the limb and knife, and pressing so forcibly backwards as to ensure the complete division of the group. The narrower the blade of the instrument, the more easily is it turned, the thinner it is, the more keenly it cuts, and the sweep of its extremity, the more correct is the cutting principle, in the stage of the operation just described.

* I have extended, says Dr. Bushe, this method of operating to the dorsal artery of the penis, the temporal, lower third of the radial and brachial arteries, with equal success. May not this procedure be preferable to the use of the *presse artère*, when the vessel is diseased?

The edge of the knife should be turned obliquely, not directly backwards; because, from the sweep of the blade, its point would project through the skin in the process of turning, and thus encumber the operator. Some surgeons have failed in dividing the group, and, of course, in the object they had in view; and to prevent such a failure, some of them have divided the integuments in front of the group, so as to ensure its perfect division; but with the modified knife, and the precautions recommended, the judicious operator will find no necessity to have recourse to what must be considered an useless proceeding; nor can the consolidation of the divided skin and veins, *en masse*, be an essential object. When the knife is withdrawn, the blood should be permitted to flow until symptoms of syncope begin to appear; then the patient may be placed in a recumbent posture, and a firm compress and bandage applied. Thus, the loss of blood keeps down phlebitis, and does away with the danger of extravasation. Dr. Bushe has performed this operation thirty-eight times with perfect success, and without a bad symptom; he prefers this method to ligature, because it is performed with more ease, perhaps, too, with more safety, and moreover, he has often observed, in his own and others' patients, that the pain of the varices was increased for a time by the ligature; on the contrary, that incision, when performed as advised, afforded immediate relief.

Excision.—In those cases where the saphena was considerably dilated, as it is turning over the semilunar edge of the fascia lata to dip into the femoral vein, Dr. Bushe effected a cure by obliterating the saphena below the point of dilatation. This he twice accomplished by a ligature applied as before related; and it then occurred to him that the cure would be equally as certain, more safe and expeditious, by an excision of a portion of the vein, and which operation he has performed three times successfully; though in each of these cases, the portion of the vein operated on was diseased. He first applies the rollers from the toes to near the middle of the thigh, and then places a firm compress over the course of the vein, immediately above the vein of the intended incision, and consigns it to an assistant, who keeps up a steady pressure until the operation is completed. A division of the skin is made parallel to the inner edge of the vein, and after having separated the integuments from it, with a probe-pointed scissors, the trunk is divided at two points, each half an inch apart; the portion thus included, being removed, the edges of the wound are brought into contact, and so retained by an oblong compress applied transversely, which, together with the one in the course of the vein, are retained *in situ*, by a roller firmly applied, and continued from the termination of the first, upwards. The patient is then placed in bed, in the same position as after the opera-

tion for popliteal aneurism. When the posterior saphena becomes enlarged, indurated or twisted, the ligature cannot be applied, in consequence of the great tortuosity of the vessel, incision would endanger the nerve and vessels of the popliteal space, and from the motion of the knee, pressure, which is generally had recourse to, cannot even palliate disease, because of the mobility of the knee-joint, and the action of the hamstring muscles. Exeision, then, seems to be the only feasible means of relief, and may be thus performed: The patient being placed on his back, and the leg extended, an incision is made for two inches on the inside of the diseased vein; the finger is then thrust beneath the massy convolutions formed by it, and brought out at a corresponding point, on the opposite side, where another incision of the same extent is made; an assistant now thrusts a compress into the upper part of the popliteal space, and fixes it firmly. On this being effected, with one stroke of the knife, the skin and veins at the lower extremities of incision are severed, the flaps reflected upwards, and the veins dissected out; the convoluted portion of the integuments are replaced, and retained *in situ* by a firm compress and roller.

To several persons who had the venous tumor in the groin, and were unwilling to submit to operation, Dr. Bushe recommended the use of a truss, with a pad slightly convex, about the size of a dollar, and connected by a vertical sliding bar of an inch in length, with the ordinary circular hoop. This means palliated the disease more than any other, and may, therefore, be recommended strongly to the profession.

Phlebitis, or Inflammation of the vein.—It is unnecessary, after the previous article, to enter very fully into the review of this disease; it has been said that it may arise from the slightest as well as from the most severe injuries, that it is accompanied by virulent fever, which has a tendency to assume the typhoid form, and that, in a great number of cases, it has proved fatal.

The *treatment*, suitable to this affection, is common to all cases of inflammation, and must consist in depletion by the lancet and the strict observance of the antiphlogistic regimen. All local applications are of but little, if of any service.

HECTIC—*Hecticus*—from *æcis*, habit.—See *Fever*, *Hectic*.

HELLEBORE—*Helleborus*.—A genus of plants of the class polyandria, and order polygynia. Two varieties are employed in medicine; the leaves of fœtid hellebore, (*hellebori fœtidi folia*;) and the root of the black hellebore (*hellebori nigri radix*.) The first are cathartic, and anthelmintic in operation, made into a decoction of ʒij of the leaves to ʒv ʒviii of water. The second is cathartic, hydragogue and emmena-

goguc, in doses of from gr: x to \mathfrak{D} i, for the first purpose, and from gr. ij to gr: iij for the latter indications.

A tincture is prepared from the root of the black hellebore, given in doses of \mathfrak{D} ss to \mathfrak{D} j in water, twice a day, for uterine obstructions, and some varieties of cutaneous eruptions. An extract, is also occasionally prescribed in doses of from gr: x to \mathfrak{Z} \mathfrak{D} as a cathartic, and from gr: iij to gr: x as an emmenagogue, in the same classes of diseases. These varieties of hellebore, and their preparations are, however, but seldom employed in the practice of the present day.

HELMINTHIASIS, (from *ελμινς*, worms.) See Worms.

HEMERALOPIA, (from *ημερα*, the day, and *ωφ*, the eye.) That defect, sometimes called *nocturnal blindness*, which consists in an inability to see in the evening, while the sight is unimpaired during the day. This affection may be considered as an imperfect *amaurosis*, which see, in *diseases of the eye*.

HEMICRANIA,—(from *ημισυς*, half, and *κρανον*, the head.) A pain affecting only one side of the head, and usually dependent on nervous or bilious diseases. It is occasionally periodical, and may be traced to the same causes, and relieved by the same remedies described in affections of the whole system.—See *Head, Injuries and Diseases of*.

HEMIPLEGIA, (from *ημισυς*, half, and *πλησσω*, to strike.) A paralytic affection of one side of the body.—See *Paralysis*.

HEMLOCK.—*Conium Maculatum*—*Cicuta*.—A plant of the class pentandria, and order digynia, the leaves and seeds of which are employed in medicine. In operation, powerfully sedative and narcotic in doses of gr: ij to \mathfrak{D} i of the powder of the leaves and seeds gradually increased, or from twelve to forty minims of the expressed juice. Externally, it may be applied in the proportion of \mathfrak{Z} iij of the dried herb to a pint of boiling water, to serofulous and syphilitic ulcerations and swellings. Baron Stoerk was the first to bring this medicine into repute, and, although experience has not confirmed its character as a specific in cancerous and other obstinate ulcerations, yet it is a remedy of unquestionable value. It is now generally employed in chronic rheumatism, and glandular swellings; and in the treatment of pertussis, it has also yielded good service. Its sedative qualities are also valuable in relieving pulmonary irritation, and its external use, when employed in the form of fomentation to a cancerous ulcer, if not of ultimate benefit, has the good effect of allaying the excessive pain accompanying the disease.

The powder of the leaves and seeds should have a lively green colour, and be kept carefully excluded from the light; when properly dried, they have a strong and heavy odour, and a slightly bitter and nauseous taste: the fresh leaves contain not only the narcotic, but

the acrid principle; by exsiccation the latter is nearly lost, but the former undergoes no change; the medicinal properties of the leaves are therefore improved by the operation of drying. In large doses, they act as a strong poison, in which light they will be considered under the head of *Poisons*.

The medicinal activity of the plant resides in a resinous element, which has been termed conein.

Officinal preparation.—Extract of conium, (*extractum conii*) which is the usual form of its exhibition—dose gr: iij gradually increased to ℥i twice or three times a day.

HENBANE.—*Hyoscyamus*.—The leaves and seeds of the *hyoscyamus niger*, a plant of the class pentandria, and order monogynia, employed in medicine as a narcotic, anti-spasmodic, and sedative, in cases of epilepsy, hysteria, palpitation, palsy, and schirrus; occasionally as a substitute for opium, when the use of that drug is forbidden in some habits. Externally it is applied in the form of cataplasm in glandular swellings, or sprinkled in powder over cancerous sores. Dose gr: iij to gr: x of the powder. *Hyoscyamus* possesses an alkaline element, called *hyoscyama*, in which its active principle resides. It is *incompatible* with the acetate of lead, the nitrate of silver, the sulphate of iron, and the vegetable acids.

Officinal preparations.—Extract of *hyoscyamus*, (*extractum hyoscyami*) perhaps the best form to administer it—dose gr: v to ℥i and even increased to ℥i. Tincture of *hyoscyamus* (*tinctura hyoscyami*) m xvj to 3ij.

HEPATITIS, (from *ηπαρ*, the liver.) *Inflammation of the Liver*—which see.

HERNIA—(from *ερως*, a branch, from its protruding out of its situation.) *A Rupture*, as it was vulgarly called from the supposition that it was always attended with a laceration of the peritoneum. The term implies a tumour caused by the displacement of some part of the abdominal viscera from the natural cavity. The most frequent herniæ are those formed by the moveable viscera, as the omentum and the intestines, although the stomach, still more rarely the spleen, and other organs are occasionally contained in the tumour.

When intestine alone is contained in the hernia, it is termed *enterocele*; when omentum, *epiplocele*; when both, *entero-epiplocele*; when the stomach, *gastrocele*; the liver, *hepatocèle*; the bladder, *cystocèle*, &c. Other terms are used to denote the situation of the tumour;—thus when the hernia passes through the abdominal ring into the groin, it is called *bubonocèle* or *inguinal hernia*, and is the most common of all in the male sex; when into the scrotum or labia pudendi of females, it is termed *oscheocèle*; when below Poupart's ligament, *crural* or *femoral hernia*,

and is most frequent in females ; when at the navel, *umbilical hernia* or *exomphalos*; when at the foramen ovale, in the vagina, perineum, or at the ischiatic notch, it is called hernia of these parts respectively.

There is a particular kind of hernia called *congenital*, which exists from the period of birth. It is produced by a piece of omentum or intestine following the testicle from the abdomen into the tunica vaginalis, before the natural obliteration has taken place between the two cavities. The protruded portion lies within the tunica vaginalis, in contact with the testicles, and has no sac but the tunic. The common scrotal hernia has a distinct sac and lies without the tunica vaginalis. Mr. Hey has discovered a new species of congenital hernia which he calls *infantile*, as it can only occur while the parts retain their peculiarity during infancy. This case differs from either of the two just explained, by being situated within the tunica vaginalis, and having a distinct peritoneal sac of its own. The intestines are also liable to strangulation within the abdomen by being confined in the apertures of the omentum, mesentery, or mesocolon, by adhesion. When a hernia protrudes at any part of the abdomen, not above mentioned, it is called ventral hernia. A hernia is commonly included in a membranous pouch or sac, formed of the peritoneum, which the hernia pushes before it, in its descent from the abdomen. It is thin in recent, and the reverse in old cases. It is sometimes burst, when the tumour receives a blow, and its contents will then be under the integuments.

In *epipoele* the tumour is of a doughy softness, inelastic, flabby and unequal, and, when there is no stricture, perfectly indolent. It is more weighty and comprehensive than in *enterocele*. In *enterocele* there is more tenseness and elasticity, and the reduction of it is attended with a gurgling noise.

Hernia exists in different states, 1st. the *reducible* or *unincarcerated*, when the contents of the sac can be easily returned into the abdomen ; 2d. *irreducible*, or when adhesion of the protruded *viscera*, to the surrounding sac, prevents reduction, but the contents are not strangulated ; 3d. *simple obstruction* from feces and air accumulating in the protruded bowels, without constriction or inflammation, called by the French *engouement*, and most common in old and large hernia ; 4th. *strangulated*, when the parts are confined and suffer violent inflammation.

Of Unincarcerated, Reducible, or Common Hernia.—Symptoms.—Sudden tumour from some of the above causes, appearing at one of those parts of the abdomen above described ; no fever, inflammation, or much pain ; the swelling dilates on coughing, disappears if the patient lies down, or can be easily pressed up with the fingers, recurs as soon as the erect posture be resumed, and continues to increase in size, unless confined by a truss.

Treatment.—Reduce the hernia, apply a truss that will make general and equal pressure upon the aperture whence the tumour appears. In young subjects, after wearing the truss a year, the opening may become obliterated, and the truss be laid aside; but in old persons it is dangerous to leave it off at any time.

The *causes of Hernia*, may arise from several circumstances; in a healthy state, the abdomen considered as a whole, is acted upon by two opposite forces, which counterbalance each other; one is a pressure of the viscera against the parietes of the belly; the other is the re-action of these same parietes upon the viscera which they contain; if these two forces were in perfect equilibrium, hernia would not take place, but, there are certain points of the abdominal parietes which naturally make much less resistance than others, and which re-act more weakly against the pressure of the viscera from within outwards. Such is especially that part which extends from the pubes to the anterior superior spine of the ilium. In a weakness at this part, either the effect of malformation or occasioned by some internal or external exciting causes, the united force of the abdominal muscles, the diaphragm and levator ani is directed and concentrated against it, when of course, the nearest viscus is subject to displacement; when this viscus is a noose of intestine, the force employed in its protrusion, acts, at the same time, upon the corresponding portion of mesentery, so that the bowel draws the mesentery along with it. In some cases the arrangement that constitutes hernia is much slower, and in inguinal hernia, in particular, the protrusion does not immediately follow the destruction of the natural equilibrium between the abdomen and its contained viscera, for, in the groin, a slight elevation is first noticed, extending from the anterior superior spine of the ilium to the abdominal ring, and it is only when the intestines has passed out of this ring, that the increase of the hernia becomes rapid. In those individuals in whom the weakness to which we have alluded exists, any sudden exertion in jumping, lifting any heavy weight, the practice on wind instruments, violent blows or kicks in the situation of the abdominal ring, may be considered as proximate causes of hernia; in short, any effort, exertion, or circumstance that suddenly contracts the abdominal muscles. Women who have borne children are more liable to hernia than others, and its occurrence is very usual among individuals of either sex who carry considerable burthens, or expose the frame to excessive labour.

Symptoms of a Strangulated Hernia.—The first symptoms are, a tumour in the situation of the rupture, attended with pain, not only in the part, but all over the belly; sickness and inclination to vomit; suppression of stools, and some degree of fever. The stoppage of evacuations from the bowels, as Mr. Lawrence has observed, may not

always be so clearly marked, where only a part of the diameter of the gut is strangulated ; but it will often occur in as great a degree in that case, and be equally insuperable by purgative medicines, as where a complete fold of intestine is included : it even happens occasionally in a mere epiplocele. The action of a clyster on the bowels below the stricture often produces a stool after the strangulation has taken place ; but when they have been once emptied, the most irritating clysters have no effect. If the reduction be delayed, the vomiting becomes more frequent ; all the contents of the stomach, and afterwards those of the bowels, down to the stricture, being rejected. There is great anxiety and restlessness, with a small, quick, and hard pulse, and cold extremities. After a time, hiccough comes on, the pulse is hardly perceptible, the respiration weak, and the whole body covered with a cold, clammy sweat. Mortification now takes place, beginning in the protruded viscera, and extending to the containing and neighboring parts. The patient suddenly becomes easy, the belly subsides, the tumour of the part diminishes, and the skin covering it sometimes changes its natural colour, for a livid hue. Whether it keep or lose its colour, it has an emphysematous feel, a crepitus to the touch. This crepitus is a sure indication of gangrenous mischief within. In this state, the gut either goes up spontaneously, or is returned with the smallest degree of pressure ; a discharge is made by stool, and the patient fancies himself better. This feeling, however, is of short duration ; for the hiccough and cold sweats, continuing and increasing, with the addition of convulsive symptoms, death soon follows. The symptoms of a strangulated omental hernia are less severe and rapid, and stools may be generally procured by purgatives or clysters. The nausea and vomiting, however, occur in a very distressing degree. This may be readily conceived, when the connexion of the omentum with the stomach is remembered. The same knowledge will also make us understand the effect of a bent posture in mitigating the symptoms, and of an extended one, in aggravating them. When the body of a person, who has died of a strangulated hernia, is examined, the whole surface of the peritoneum is found inflamed, the intestines participating in the disorder, particularly those above the stricture, which are considerably distended. From the constricted part downwards, the intestine is generally smaller than usual, and not inflamed. The convolutions of the bowels are also connected together by recently formed adhesions ; a turbid puriform fluid, with flakes of coagulated matter, is effused in the abdomen ; and not unfrequently, spots of gangrene are seen on the intestines.

Treatment of a Strangulated Hernia.—When we reflect upon what parts are wounded by the operator, and put out of consideration the whole of that constitutional disturbance, which invariably results from

the continuance of the strangulation; there seems ample cause to believe, that the generality of fatal events, consequent to the operation, are attributable to the disease itself, and not to the attempt made for its relief. It was remarked by the late Mr. Hey, that if Mr. Pott's opinion be true, that the operation, when performed in a proper manner, and in due time, does not prove the cause of death oftener, than perhaps once in fifty times, it would undoubtedly preserve the lives of many to perform it almost as soon as the disease commenced, without increasing the danger, by spending much time in the means, which cannot be depended upon. Hence, in selecting a method of treatment previously to the operation, the surgeon should be actuated by a determination to lose no time. The loss of a single hour may launch the patient into a state, from which no subsequent skill can extricate him. The taxis, or reduction of the hernial contents by the hand, ought to form the primary object of a surgeon called to an incarcerated hernia. To perform this well in bubonocoeles is impossible, without a knowledge of the precise situation of the abdominal ring, and of the direction of that canal, of which the ring is merely the external termination; it is surprising that many surgical authors, who have been tediously particular in relating the mode of performing the taxis, should never have reminded their readers of the great utility of attending carefully to the situation of the opening, through which the hernia protrudes. The projecting point of bone, termed the *angle of the pubes*, is the chief guide to the situation of the ring. The opening lies a little above, and on the inside of this bony prominence, which is very distinguishable in the fattest subject. The contents of an ordinary bubonocoele descend through the canal of the abdominal ring downward and inward, or, more correctly speaking, in the direction of a line drawn from the ilium to the angle of the pubes; the sac, invested by a certain fascia, and the cremaster muscle, lying beneath the integuments, in front of the spermatic cord. In attempting reduction with the hand, therefore, all our pressure should be concentrated in the direction upward and outward, so as to press the contents of the hernia in the direction of the axis of the canal of that opening, out of which they protrude. The external oblique muscle should be relaxed. For this purpose, the thorax should be elevated, and turned towards the opposite side.

Since, also, the femoral fascia, when tense, tightens Poupart's ligament, and an aponeurosis which is spread over the hernia, the thigh should be bent and rotated inward.

In the femoral hernia, the viscera descend, first downward and then forward, and the pressure should therefore be made first backward, and then upward. Indeed, as the tumour mounts over the edge of the falci-form process of the fascia lata, it should first be pushed a little down-

wards. The external oblique muscle should be relaxed, and the thigh bent, as in the case of bubonœcelc. As Gimbernat and Mr. Hey have noticed, the stricture in the femoral hernia is not made, as was supposed, by Poupart's ligament, but frequently by a band of ligamentous fibres, more deeply situated. But as this band is connected with Poupart's ligament, the relaxation of the latter must necessarily relax the former part. No violence should ever be employed in attempting to reduce the hernia with the hand. Force can never do good, and may do immense injury to the inflamed viscera in the hernial sac. J. L. Petit, and Sir A. Cooper mention examples, in which the intestine was even burst by it. Some writers have maintained, that when the rupture becomes painful, we are no longer justified in persevering in attempts at reduction by the hand. Certainly, it must be admitted, that all unnecessary and protracted handling of an inflamed hernial tumour ought to be condemned, as tending to increase the inflammation, and accelerate the approach of gangrene. However, were we always to omit a trial of the taxis, because inflammation of the parts had come on, there would often be a necessity for having recourse to the knife, when the taxis, either alone or assisted by other means, would answer every purpose.

When manual attempts at reduction have failed, other auxiliary means should be immediately tried. In the opinion of the most experienced men, bleeding, cathartics, clysters, cold topical applications, the warm bath, and tobacco smoke, or decoction, introduced into the large intestines, are the most efficacious. Yet it is not enough to possess this information; for, to render our knowledge likely to be productive of a judicious practice, it behoves us to learn precisely what degree of reliance should be placed upon each of these means, and the exact order in which they ought to be tried, so as to procure the greatest chance of relief, without occasioning any hazardous delay, beyond that critical moment, at which the operation is most strongly indicated. When reduction by the hand proves impracticable, venesection should be immediately practised.

The testimony of the best writers is in favour of this plan; and the little time consumed in trying its effects, is another weighty circumstance in its recommendation. It is advisable on the principle of its counteracting inflammation, and of producing a temporary weakness and even syncope, with a general relaxation, highly favourable to the success of the taxis.

Sometimes in very old and feeble subjects, the use of the lancet may be judiciously omitted. In hernia, attended with mere obstruction, from accumulation of the contents of the bowels, in the protruded viscera, and not from strangulation, bleeding is unnecessary. When the patient

has been bled, it becomes advisable to make another attempt to reduce the parts by the hand; and if fainting should occur, this favourable opportunity ought not to be lost. Too often, however, the hernial contents are not to be released from their incarcerated state by such mild treatment. Success not being obtained, the warm bath must be immediately employed, which should always be prepared before-hand, in case of emergency. No material time should be consumed in trying the effect of clysters and cathartics, and the use of the latter, in cases of enterocele, may be very rationally questioned. In every instance, in which there is reason to believe the strangulated hernia to be of the intestinal kind, no sooner have the repeated attempts at reduction with the hand, assisted by bleeding, and the warm bath, failed, than the surgeon should immediately try the united effort of cold, applied to the tumour, and of a tobacco clyster, or its fumes, introduced into the large intestines. Snow, or ice pounded, and mixed with salt, and put into bladders, should be applied to the swelling. If snow or ice cannot be obtained, the evaporation of cold spirituous lotions from the surface of the swelling may be tried as a substitute.

In preparing the tobacco clysters, it is wrong to lose half an hour in infusing the plant. A drachm may be macerated ten minutes in a pint of boiling water, and the liquor then strained for use. One half should be first injected, and soon afterwards the other, unless the effects of the first quantity appear too violent. Frequently, during the combined action of the ice and tobacco, the contents of the hernia return spontaneously into the abdomen; but when this is not the case, the surgeon should make another final effort to reduce the parts by the hand. If this again fail, even when the patient is duly under the influence of the tobacco, and if the symptoms of strangulation, at the same time, continue to increase, the operation ought to be undertaken, without further delay.

Bubonocoele or Inguinal Hernia.—Of all the various species of hernia, the inguinal is by far the most common. In the unincarcerated and reducible state, it is denoted by the following circumstances:

First—By a tumour arising from a protrusion of some part of the bowel through that canal or opening which is commonly called the abdominal ring, and which in the male subject gives passage to the spermatic cord, and in the female to the round ligament of the uterus. The swelling is not preceded by any symptoms of inflammation: and though its commencement is generally slow and gradual, it frequently undergoes a sudden enlargement, and is, for the first time, particularly noticed by the patient himself, after he has been making some violent effort.

Secondly—By the diminution, or even total disappearance of the swelling, when the patient lies upon his back; by its recurrence, when

he stands up again ; and by the impulse, which is felt in the swelling, whenever he coughs.

Operation for Strangulated Bubonocoele.—The hair should be first removed from the tumour and adjacent parts. The incision is to commence about an inch above the ring, and, unless the tumour be large, extended nearly to the lowest part of it. In operating upon a serotal hernia of middling size, it is of no importance that the incision tend a little more towards one side of the swelling than the other ; but if the hernia be old, and of large size, the cut should be made exactly in a longitudinal line, dividing the tumour into two equal parts ; for, in this degree of the disease, the component vessels of the spermatic cord are frequently separated from one another, and pushed over the sides, or even upon the very front of the lowest portion of the hernial sac. Therefore, by dividing the lateral and inferior part of the sac, in such cases, the surgeon would run the risk of cutting the spermatic artery, either alone, or together with the vas deferens. The incision through the skin and cellular substance covering the sac, divides the external pudic branch of the femoral artery which crosses the hernial sac near the abdominal ring, and sometimes bleeds so freely as to require a ligature.

It also exposes the fascia, which, according to Sir A. Cooper, passes from the external oblique muscle, and covers the cremaster. By beginning the cut above the ring, we gain room where it is much needed, in a subsequent part of the operation, namely, the incision of the stricture.

With a pair of dissecting forceps, a portion of the fascia must next be raised, and a small opening made in it, sufficient for the introduction of a director, on which instrument the surgeon is to divide the fascia upward to the abdominal ring, and downward to the end of the first wound.

This division of the fascia exposes the cremaster muscle, which is to be opened precisely in the same manner, when the cellular substance immediately covering the peritoneum, or true hernial sac, will present itself. These investments are generally much thicker than the sac itself, which, excepting when the hernia has been often inflamed, or adhesion exists, mostly retains its natural thinness and transparency. The operator is now to take hold of some of this cellular substance, which adheres intimately to the anterior inferior part of the sac, with a pair of dissecting forceps, and thus he is to raise the sac itself. Then with the edge of the knife turned horizontally, he makes an opening just large enough to admit the blunt end of a probe, or a director, upon which the sac is to be further divided upward to the abdominal ring, and downward to the bottom of the tumour. The anterior and inferior part

of the sac is selected as the place for making the first opening, because the intestine seldom descends so low; and whenever fluid is present, it gravitates to this situation. Sir A. Cooper does not extend the division of the sac nearer to the ring than an inch, in order to avoid making the closure of the wound more difficult, and to lessen the danger of peritoneal inflammation.

The next object is the division of the stricture. Sir A. Cooper directs the surgeon first to introduce his finger into the neck of the hernial sac, for the purpose of ascertaining the exact situation of the strangulation, which he will find either at the abdominal ring, or about one inch and a half from this aperture, in the direction upward and outward; or lastly, in the mouth of the hernial sac.

When the stricture is produced by the abdominal ring, he recommends the surgeon to pass his finger into the sac, as far as the stricture, and then to convey a probe-pointed bistoury over the front part of the sac, into the ring, which is next to be divided, upward, opposite the middle of the neck of the sac, and to an extent just sufficient to allow the protruded parts to be returned into the abdomen, without injury. The chief advantages of dividing the ring upward, depend, first, on the fabric of this aperture not being so much weakened as it would be by cutting upward and outward, and dividing the transverse tendinous fibres, which cross its upper part; and, secondly, on the safety of the method in regard to the epigastric artery, whether the case be the external or internal hernia of Hesselbach, in which last example the artery always lies on the outer side of the neck of the sac. If, however, we were sure of the disease being the less common disease, an internal inguinal hernia, of course, it would then be perfectly safe to cut the ring inwards and upwards.

However, a frequent situation of the stricture is not at the abdominal ring, but at the place where the sac opens into the abdomen; that is an inch and a half, or two inches towards the anterior superior spinous process of the ilium from the ring. Here the strangulation is caused by the transversalis muscle and its tendon, which passes over the hernial sac, in a semicircular direction, and by a fascia arising from Poupart's ligament, the semicircular border of which passes under the sac. In this case Sir A. Cooper advises the surgeon to introduce his finger into the sac, through the abdominal ring, as far as the stricture; and then the probe-pointed bistoury, with the flat point of its blade turned towards the finger, is to be insinuated between the front of the sac and the abdominal ring, till it arrives under the stricture formed by the lower edge of the transversalis and obliquus internus. The edge of the instrument is to be next turned forward, and the stricture cut in the direction upward, by which method the epigastric artery cannot be

cut, whatever be its situation in regard to the sac. The division should only be of sufficient extent to allow the finger to pass through the strangulation, and Sir A. Cooper makes it with a bistoury, the cutting edge of which extends but a little way from the point. When the stricture is caused by the neck of the sac itself, the probe-pointed bistoury must be carefully introduced, and a division made directly upward. The above plan of passing the bistoury between the sac and ring, is now generally rejected, and the preference given to introducing the instrument within the sac itself, for the division of the stricture. Having removed the stricture, the next object is to return the protruded part into the cavity of the abdomen. Nothing but the absolutely gangrenous state of the intestine should deter the practitioner from reducing it; the dark chocolate brown dis-colourations, with which it is often affected, generally produce no permanent mischief, and ought to be discriminated from the black, purple, or lead coloured spots, which are the ordinary fore-runners of mortification. The intestine is to be reduced before the omentum; and the portion nearest the ring should be first introduced. When a portion of the omentum is mortified, and adhesions within the ring do not render the scheme impracticable, or unadvisable, the dead part is to be cut off, and the rest returned. This membrane is sometimes found converted into a large indolent fleshy mass, weighing two or three pounds. Here it should be cut away, and the bleeding vessels tied with fine silk ligatures.

In the cases of large, old, adherent hernia, it is best to remove the stricture, without laying open the hernial sac, or at most, only the neck of it. The separation of the preternatural connections is often extremely tedious and difficult. As Mr. Lawrence observes, the violence which must necessarily be inflicted, in executing this part of the operation, would be very apt to make the parts inflame. The extensive surface which must be exposed by laying open the whole of a large hernial tumour; the risk of cutting the spermatic vessels, which often lie, in these cases, on the front of the lower part of the sac; the occasional impossibility of keeping the returned part in the abdomen; the great dilatation of the ring, and the little hope of a radical cure; present numerous reasons in favour of the plan of only dividing the stricture. An incision, two or three inches long, is to be made in the integuments over the abdominal ring. The fascia covering the sac, should be exposed and opened. A director may now be passed under the tendon, and a probe-pointed bistoury conducted along the groove to the part which is to be cut. In case of difficulty, the neck of the sac may be opened, and the director introduced as before.

Femoral or Crural Hernia often takes place in women who have had many children; seldom in young females; and still more rarely in men.

In male subjects the viscera generally escape through the abdominal ring, along the spermatic cord; in women, the protrusion is mostly below Poupart's ligament, on account of the smallness of the abdominal ring, its lower situation, its great proximity to the pubes, and the more considerable extent of the crural arch in them, than in men.

The crural hernia, whether in the male or female sex, forms in the cellular membrane which accompanies the crural vessels under Poupart's ligament; it follows the inner edge of these vessels, and gradually descends to the bend of the thigh, between the sartorius, gracilis, and pectineus muscles.

The tumour, in fact, takes place below Poupart's ligament, just on the inside of the femoral vein, and being situated in front of the pectineus, is, of course, on the outside of the fascia lata. The variety, however, in which the hernia descends into the sheath of the crural vessels, is an exception to the latter statement. Many surgeons have imagined that the hernial sac and the bowels usually lie over the crural vessels and trunk of the vena saphena, and sometimes betwixt these vessels and the anterior superior spine of the ilium; but as far as Scarpa's researches extend, this statement is not supported by a single accurate description of a crural hernia in the incipient state. The direction in which the parts protrude, is first downwards and then upwards, so that, in attempting the taxis, the surgeon should endeavour to reduce the viscera, first backwards, and then upwards and inwards towards the navel; the abdominal muscles, Poupart's ligament, and the fascia of the thigh, being relaxed in the same way as when an attempt is made to reduce a bubonocoele. Intestine is almost always contained in the sac; the cases in which the omentum protrudes by itself being unusual. With respect to the diagnosis, the tumour is generally much smaller than a bubonocoele, and lies so deeply in the groin, that in the thinnest subjects, its neck cannot be plainly felt. When the hernia is large, its neck is always deep, while its body and fundus assume an oval shape, having their greatest diameter across the bend of the groin. But, whatever may be the size of a bubonocoele, its shape is always pyramidal, the base, instead of tending towards the hip, constantly follows, in the male subject, the direction of the spermatic cord into the scrotum. Besides the symptoms common to hernia in general, the crural species, when it has attained a certain size, has some characters which are peculiar to it; such as a sensation of stupor and heaviness in the thigh, and œdema of the leg and foot.

In the operation for a strangulated femoral hernia, the incision through the integuments should commence from the point where the hernia protrudes; that is at Poupart's ligament, a little nearer to the symphysis pubis than the femoral vessels are; and it should be continued obliquely downwards and outwards. Any glands which may lie over the hernia.

should be avoided. The sac is still concealed beneath cellular substance, which is here much thicker than in a bubonocoele, and beneath aponeurotic fibres, which proceed from the femoral fascia, ascend obliquely over the front of the thigh, and are connected with the lower and external part of the tendon of the external oblique muscle. These fibres, which constitute what is frequently named the fascia propria, must be divided before the hernial sac can be exposed. The femoral hernia is on the outside of the fascia lata, except in a few instances, in which the parts enter the sheath of the femoral vessels. Hence the operator should make his incisions cautiously; as the sac, which is usually very thin, lies immediately under the integuments, with the intervention of only a few tendinous fibres, which may be most safely divided when a director, or probe, is placed under them.

The hernial sac is to be opened by means of a pair of dissecting forceps and a bistoury. The operator is to raise the part by taking hold of the cellular membrane attached to it, and is then to make a very small aperture by a superficial horizontal cut. Through this opening a director is to be introduced, and the surgeon may then safely divide the sac nearly as high as Poupart's ligament, and quite to the bottom of the tumour. The next object is to divide the stricture. Formerly the stricture was always supposed to be caused by the front edge of Poupart's ligament; and consequently its division was generally deemed the chief design of the operation. Le Dran, in operating for a crural hernia, very long ago observed, that the closest strangulation was not made by this ligament; and when he divided the neck of the sac, no doubt he cut what Mr. Hey has since named the *femoral ligament*, the part generally producing the pressure on the strangulated viscera. Gimbernat is entitled to the honour of having first explained what part it is that really forms the strangulation. The lower border of the aponeurosis of the external oblique muscle, as Mr. Lawrence remarks, has a broad insertion into the pubes; this attachment, which begins at the spine, runs along the crista of the bone. Its position, therefore, in the erect state of the body, is nearly, though not entirely, horizontal; consequently its two margins should be described by the epithets, anterior and posterior; it being remembered, at the same time, that the former of these is rather higher than the latter. That part of it which is fixed to the spine of the bone, has the appearance of a firm and somewhat round tendinous cord. Its insertion into the crista of the pubes is effected by means of a thinner portion, which gives to the tendon a clearly defined sharp edge at its posterior margin, and is more deeply situated than the spine of the bone. It is this thin, deep-seated, sharpened-edged, posterior margin of Poupart's ligament, near the pubes, that occasions the strangulation in cases of femoral hernia, and requires to be divided in the operation. There is,

however, another part, which has some share in producing the strangulation. Where the attachment of the fascia lata to the crural arch terminates, it forms a *semilunar fold*, with the concavity turned towards the pubes, or opposite limb. This fold bends under the crural arch, so as to unite to the femoral ligament at its commencement, and consequently, it must contribute, in some degree, to the stricture. Gimbernat has called the space beneath Poupart's ligament, the *crural arch*. The anterior crural nerve always passes on the outside of the sheath of the femoral vessels, towards its external and posterior part. Before the external iliac artery enters, it sends off the epigastrie. This vessel passes obliquely inward, between the crural arch and spermatic vessels. Immediately on the inside of the crural vein, there is a foramen, sufficiently distinct, almost round, at which many lymphatics enter. It is sometimes stopped up by a lymphatic gland, but the parts which form the crural hernia, always pass through it, and consequently, Gimbernat calls it the *crural ring*.

In operating, Mr. Hey was accustomed to pass a director within the crural ring, on that side of the intestine, or omentum, which was nearest to the symphysis of the pubes, and with a probe-pointed bistoury cut that part of the ring which he names the *femoral ligament*, directly upwards, a plan which answers very well in women, but would endanger the spermatic cord in men.

Gimbernat recommends introducing a director into the ring, with its back towards the intestine, and its groove towards the symphysis pubis. Along the groove, a narrow probe-pointed bistoury is introduced into the ring, and the internal edge of the femoral ligament divided as close as possible to its insertion into the pubes.

Exomphalos or Umbilical Hernia.—J. L. Petit and Scarpa consider true exomphali, or those which occur through the umbilical ring, as peculiar to young subjects, in which sentiment they differ from Sir A. Cooper, who represents the hernia as mostly happening through the navel itself. In adults, the protrusion happens more frequently above, than below the umbilicus; a fact accounted for by the upper half of the linea alba, from the ensiform cartilage to the navel, being naturally broader and weaker than the lower half, the recti muscles becoming situated nearer together as they descend from the navel to the pubes. The true umbilical hernia, whether met with in the infant or the adult, has a circular neck, at the circumference of which the tendinous margin of the umbilical ring can be felt with the finger. Whatever may be the size of the tumour, its body always retains nearly a spherical shape; nor can any wrinkle of the skin, nor any thing at all resembling the cicatrix of the navel, be observed either upon the convexity or upon the sides of the swelling, the skin being merely a little paler and thinner at

some points than others ; on the contrary, in a hernia of the linea alba, the neck of the swelling is of an oval shape, like the fissure through which the protusion has taken place. The tumour itself is also constantly of an oval form. When the finger is pressed deeply round its neck, the edges of the aperture in the linea alba are perceptible ; and if the hernia be very near the navel, the umbilical cicatrix may be seen on one of the sides of the swelling, a sure indication that the viscera do not protrude through the umbilicus itself.

The umbilical hernia is not only furnished with a true peritoneal sac, but possesses likewise a more superficial investment, derived from a condensation of the surrounding cellular substance. The coverings of the hernia, however, are frequently very thin. In old large cases, portions of the sac are sometimes absorbed, the viscera adherent to the integuments, and the intestine, even strangulated in the aperture thus produced in the sac. An umbilical rupture, in an adult, rarely contains intestine unaccompanied by omentum. The transverse arch of the colon is the bowel mostly protruded, but the small intestines are also frequently found in the sac, and, in some usual instances, the cæcum. The exomphalos of the adult subject happens with much greater frequency in women than men, a fact which is explicable by the consideration, that pregnancy has more influence than any other cause in bringing on the complaint. The swelling, indeed, generally becomes larger with every pregnancy ; and, as the contents usually consist both of intestine and omentum, the disease mostly increases in size as the individual becomes fatter. Dropsical and corpulent individuals of both sexes are also frequently afflicted.

Herniæ of the linea alba, when left to themselves, are much slower in their progress than the true exomphalos. On account of their small size they are frequently unobserved, especially in corpulent subjects, or when situated at the side of the ensiform cartilage. These two species of hernia require similar modes of treatment ; but the cases which happen in the linea alba, *cæteris paribus*, are more difficult of cure than the exomphalos ; a circumstance probably owing to the natural tendency of the umbilical ring to contract when the hernia is properly hindered from descending, an advantage which does not belong to openings accidentally formed in the linea alba. When an exomphalos is not kept reduced with a bandage or truss, but is allowed continually to protrude, its contents often acquire intimate adhesions to each other, and to the hernial sac, so as to form altogether one inseparable mass. Then the intestinal matter has sometimes a degree of difficulty in passing through that portion of the alimentary canal, which is contained in the tumour ; frequently, indeed, it is detained there in sufficient quantity to cause obstruction, in which circumstance, the contents of the intestines accu-

mulate in that part of the canal which is betwixt the hernia and the stomach. In this sort of case, vomiting is one of the earliest symptoms, the obstruction being of that description which the French have called "*l'etrangement par engouement.*" The matter brought up from the stomach often has a fecal sinell and colour; and vomiting, which sometimes takes place without much effort, may be for a long while almost the only complaint.

In the mean while, the surgeon endeavours to reduce the hernia by the taxis; and occasionally the obstruction is removed with the aid of purgative clysters, small separated doses of the sulphate of magnesia, and the application of ice, or cold lotions to the tumour. In other examples, ten days or a fortnight may elapse, without the symptoms being urgent enough to demand an operation. When in an exomphalos, or hernia of the linea alba, the omentum alone is strangulated, the symptoms are almost as urgent as when the bowel is in the same state. In the former case, however, there is generally only nausea, and if vomiting supervene, it is less frequent and violent, than when the intestine is incarcerated; and the stools are hardly ever entirely suppressed. The reason why the effects of strangulation of the omentum, in an exomphalos, are more severe than in inguinal and crural hernia, is referred by Scarpa, to the proximity of the stomach.

When practicable, the exomphalos should be reduced and kept from descending again by means of a well constructed truss, the uninterrupted use of which, in young subjects, sometimes produces a radical cure. When, in adult subjects, an operation is unavoidable, on account of the continuance of strangulation, and its effects, the method of proceeding is not materially different from that recommended in describing the treatment of a strangulated inguinal or crural hernia. If possible, however, still greater caution is necessary, owing to the intimate connexion between the integuments and hernial sac, and the adhesions often existing between the latter part and the omentum. In the performance of this operation, Scarpa advises us to make a semi-circular incision in the integuments on the outside of the neck of the hernia, and then cautiously to divide the subjacent aponeurotic investment. We are next to insinuate a grooved director between the neck of the hernial sac and the umbilical ring, and cut the hard tendinous margin of the latter opening, as freely as circumstances may require. If a director cannot pass easily between the sac and the ring, the nail of the left fore-finger should be introduced between the neck of the sac and the border of the tendinous opening, which is to be dilated without any injury of the sac itself. This being accomplished, a gentle attempt is to be made to reduce the portion of bowel and omentum nearest the ring. But when adhesions hinder such reduction, the surgeon is to be content with removing the strangulation. Should it be found impracticable to make a suitable dilatation of the

stricture, without cutting the neck of the hernial sac, this must be cautiously opened at the point where the umbilical ring has been already divided. The preceding method appears much safer, than laying open an enormous swelling, and handling and exposing a large mass of viscera.

Congenital Inguinal Hernia.—This case differs from all other ruptures, in the circumstances of the protruded bowels being in immediate contact with the testicles, the tunic vaginalis serving as the hernial sac. The origin of this species of hernia is as follows: until the approach of birth, the testes of the fœtus are lodged within the cavity of the abdomen, and situated immediately below the kidneys, on the forepart of the psoas muscles, by the side of the rectum, which bowel is larger in proportion to the capacity of the pelvis, than in the full-grown subject, and lies before the lumbar vertebræ as well as the os sacrum. The anterior and lateral surfaces of the testis are covered by reflected peritonæum, while posteriorly it adheres to the psoas muscle by means of cellular substance. A little while before birth, generally in the eighth month, but sometimes subsequently to this event, the testes descends through the abdominal ring, and then pass through a kind of membranous canal, which the peritonæum forms from that aperture into the scrotum. Thus, as they were already furnished with one peritoneal investment up in the loins, a second is acquired by their entering this canal, or rather elongation of the peritonæum. The first covering, which is smooth and every where closely adherent to the surface of the testis, constitutes the tunica albuginea; while the other, which is denser, and in front loose and unconnected, becomes the tunica vaginalis. "While the testis is descending, (says Mr. Hunter,) and even when it has passed into the scrotum, it is still covered by the peritonæum, exactly in the same manner as when within the abdomen; the spermatic vessels running down behind the peritonæum there, as they did when the testis lay before the psoas muscle. That lamella of the peritonæum is united behind with the testis, the epididymis, and the spermatic vessels, as it was in the loins, and likewise with the vas deferens; but the testis is fixed posteriorly to the parts against which it rests, being unconnected and loose forwards, as while it remained in the abdomen. In coming down, the testis brings the peritonæum with it; and the elongation of that membrane, though in some circumstances it be like a common hernial sac, yet, in others, is very different. The testis, in its descent, does not fall loose, like the intestine, or epiploon, into the elongation of the peritonæum, but slides down from the loins, carrying the peritonæum with it; and both that (the testis) and the peritonæum continue to adhere, by the cellular membrane, to the parts behind them as they did when in the loins. Soon after the testis have arrived in the scrotum, the upper part of the peritoneal canal is gradually shut up and obliterated, by which change, all

communication between the cavity of the peritonæum and that of the tunica vaginalis is effectually annihilated.

The exact period of time when the peritoneal canal closes, probably differs a little in different individuals, as the most correct writers are not entirely agreed about it; but according to Jolin Hunter and Wrisberg, both testes have usually got to the bottom of the scrotum in the ninth month, and the passage is closed. Sometimes, however, the complete closure of the peritoneal canal, through which the testis descends, is certainly delayed for a greater or lesser space of time after the child is born, in which circumstance, if any of the bowels be forced into it, they become of course, as long as they continue unreduced, an impediment to its further obliteration. The communication between the cavity of the abdomen and that of the tunica vaginalis, then continues open, and the protruded bowel, and the testis, covered merely by its albuginea, lie together in one and the same sac, which is the tunica vaginalis itself. Such is the nature of the ordinary congenital inguinal hernia. Some congenital herniæ have been known to take place, for the first time, as late as the ages of twelve, fifteen, and twenty, and even thirty. Probably, in several of these examples, the testicle had remained all this while within the abdominal ring; and without descending into the scrotum; and when it did descend, the bowels followed it.

A congenital inguinal hernia is, at first, generally an enterocele, the omentum in young infants being too small and short to protrude under ordinary circumstances down into the scrotum. However, when the testis, previously to its descent, becomes accidentally adherent to the omentum, the disease may be from the first, and in the youngest subject, an epiplocele; and, in other cases, where no such connexion exists, the omentum may afterwards descend into the cavity.

The most important symptom by which a congenital inguinal hernia may be distinguished from a common scrotal rupture, is the situation of the testis, which, in the latter disease, can always be plainly felt towards the lower and back part of the tumour. But, in a congenital hernia, if the protrusion be at all considerable, the testis cannot be felt while the bowels are down. When we hear, also, that the patient has had the complaint from his earliest childhood, we have strong reason for suspecting the case to be of the congenital kind. But when such intelligence is communicated to us, we are not, without further consideration, to pronounce the disease positively to be congenital rupture; for experience proves, that every hernia in a child is not invariably of this description. The treatment of a congenital inguinal hernia is to be conducted on the same general principles which apply to other ruptures, and a radical cure is often easy of accomplishment; for after the viscera are reduced, the passage, or communication between the abdomen and

scrotum, has a natural tendency to close, and in young persons will always do so, provided care be taken to prevent the bowels from descending again, by the regular and uninterrupted use of a well-made truss.

If the patient be young, the cure may even be completed in the course of a few weeks. This facility of cure, however, diminishes as the individual grows older, and after the adult age, little expectation can be indulged that the patient will ever recover so perfectly as to enjoy security, without the constant employment of a truss. As Mr. Pott has correctly stated, a piece of intestine, or omentum, may get pretty low down in the sac, while the testis is in the groin, or even within the abdomen. In these cases, the application of a truss would be highly improper; for, in the latter, it might prevent the descent of the testis from the belly into the scrotum; in the former, it must necessarily bruise and injure it, give a great deal of unnecessary pain, and can prove of no real use. Such bandage, therefore, ought never to be applied, unless the testis can be fairly felt in the scrotum, after the bowels are replaced.

In operating upon congenital hernia, we should be aware, that the protruded bowels may be strangulated by a contraction of the neck, or even of the body of the hernial sac, while the abdominal ring itself may have no share in producing the evil. Where, however, it is requisite to dilate this opening, the incision may be always made with perfect safety, either directly upwards, or upwards and outwards; the displacement of the epigastric artery to the inner side of the neck of the hernia being regular and constant in its occurrence.

Sometimes an aqueous fluid collects in the sac of a congenital hernia, either with or without a protrusion of the viscera, forming a true hydrocele of the tunica vaginalis, but attended with the peculiarity, that the water can be pressed back into the abdomen. According to Sir A. Cooper, the nature of the case may be ascertained by returning all the contents of the tumour into the cavity of the abdomen, when the patient is in a horizontal position, and then, on putting the finger against the abdominal ring, and letting the patient stand up, the water will fall into the scrotum; if the pressure of the finger be now diminished, and the patient cough, the intestine and omentum will be felt falling down into their former situation. In young subjects, the fluid is in the end generally absorbed, and no operation is necessary on its account.

Hernia with Obstruction, but not Strangulation.—What the French surgeons call "*engouement*," is produced by the accumulation of the intestinal matter in the protruded portion of the bowels. It is most common in old large herniæ, and depends upon the difficulty with which the contents of the intestines ascend against their gravity, so as to pass from the bowels, contained in the hernia into the rest of the intestinal canal. They lodge in the part; the canal becomes obstructed; the intestinal

contents accumulate in larger and larger quantities between the stomach and the seat of the obstruction; and the hernial tumour enlarges, being at first indolent and soft, and not elastic and painful, as in a true case of strangulation. The *engouement*, or simple obstruction of a hernia, is essentially different from incarceration, or strangulation, inasmuch as it may exist without there being any disproportion between the opening, through which the hernia takes place, and the protruded parts. At length, the abdomen becomes tense; the tumour grows larger and painful; the patient, who had only been troubled with nausea, now vomits up the contents of the bowels; fever commences; and the general symptoms of strangulation occur, in combination with such as originate from the mere obstruction. This latter state, unattended with actual strangulation, may exist several days and even weeks, without putting a period to life: while on the contrary, the bowels, when strangulated, immediately inflame, and sometimes become gangrenous in the course of four-and-twenty hours.

According to the French surgeons, bleeding is seldom of any use in hernia, accompanied by mere obstruction. Cold applications to the swelling, brisk cathartics, and laxative clysters, are the best means; and if they fail after repeated attempts, the operation must be resorted to.

Hernia of the Cæcum, Colon, and other Viscera.—See *Viscera*.

Hernia Humorallis.—See *Testicle*, diseases of. See the works of Pott, Scarpa, C. Bell, Sir A. Cooper, Lawrence, and Samuel Cooper.

HERPES, (from *ερω*, to creep,) Tetter. A disease of the skin. See *Cutaneous Diseases*.

HICCOUGH.—*Singultus.*—This affection may be either *idiopathic* or *symptomatic*, and is occasioned by a spasmodic action of the stomach and diaphragm. The *idiopathic variety* is usually occasioned by the presence of an excess of acid, or undigested aliment in the stomach, and may in general be checked by a draught of any cold liquid, or a small quantity of vinegar or lemon juice; when these simple remedies fail, an antispasmodic draught will be required, containing ether, musk, or opium, and in some severe cases, we must even have recourse to an emetic, or a blister applied to the region of the stomach. The symptomatic hiccough is of a very different character, and too frequently occurs in the advanced stage of fevers, in injuries of the viscera, and in cases of mortification, to denote a fatal termination. It is not an uncommon symptom in hysteria. In all these instances, stimulants are imperatively called for, of a nature suited to the existing disease.

HICCOUGH IN INFANTS is a frequent occurrence, and arises from acidity of stomach. It may be relieved by a little magnesia, or prepared chalk, preventing its return by a gentle emetic, or in the most severe cases by the administration of mild cordials and antispasmodics, such as the camphorated tincture of opium, peppermint, &c.

HIP JOINT DISEASE.—See *Joints, diseases of*.

HONEY—*Mel.*—The substance collected by bees from the nectary of flowers. The clarified honey (*Mel Despumatum*) is chiefly employed in medicine in the formation of officinal preparations; such as the Honey of Borax (*Mel Boracis*) applied to the tongue and the insides of the cheeks, in aphthous affections, and in ptyalism. Honey of Roses (*Mel Rosæ*) employed in gargles for ulceration of the mouth and fauces, and as a vehicle for other remedies in infantile diseases. The acetated Honey of Squill, (*Mel Scillæ Acetatum*), or the Oxy-mel of Squill, as it is commonly termed, administered as an expectorant diuretic, and in large doses of emetic. Compound Honey of Squill, (*Mel Scillæ Compositum*), well known as the Hives Syrup. Oxy-mel of meadow Saffron, (*Oxy-mel Colchici*), also used as an expectorant and diuretic in humoral asthma, rheumatism, and gout, in doses of $\mathfrak{z}\text{j}$ gradually increased to $\mathfrak{z}\text{j}$ twice a day.

HOOPING COUGH—*Pertussis.*—This disease is characterized by a convulsive cough, interrupted by a full, sonorous inspiration, returning by fits that are usually terminated by vomiting or copious expectoration. It occurs but once during life, and generally in the period of childhood, although no age is exempt from its attack. It is communicated by a specific contagion, is likewise epidemic, and obeying the law of epidemics in general, possesses the power of infecting the human body through some unknown atmospheric influence without the agency of contagion. When the morbid action is set up in the system, the paroxysm, which constitutes its peculiar phenomenon, is repeated at uncertain intervals, and without evident cause. These paroxysms may also be induced by certain exciting causes, as violent exercise, a full meal, improper food, inhaling dust, smoke, or emotions of the mind. It appears in its mildest form in the summer season, and in warm climates.

Symptoms.—Pyrexia, cough, and hoarseness, resembling catarrh, which continue one or two weeks, when the cough becomes convulsive, attended with a peculiar whooping inspiration, clearly denoting the disease. The coughing and sonorous inspiration continue for some minutes, when they terminate either by vomiting, or expectoration. The child appears little affected at the termination of the paroxysm by its previous violence, expresses a desire for food, and returns to its amusements until another fit comes on, which goes through the same process. Having arrived at its height, it continues some weeks longer, and then gradually abates, though, in some cases, it is protracted for several months, and even a year. The cough moderates as soon as the expectoration becomes free, and the slight hæmorrhage that sometimes occurs from the nose is likewise a favorable symptom, in a partial relief of the system. The whooping cough is not very frequently fatal; it may

endure for a considerable period, and return with violence, after an interval of comparative ease, from exposure to cold or when very young children are attacked, and death ensues in some cases from suffocation, the little sufferer being unable to discharge the mass of accumulated mucus; in other instances, a fatal result has succeeded from apoplexy, in consequence of the excessive and straining exertion during the paroxysm. Upon dissection of those individuals who have died of this disease, we witness a high state of inflammation in the bronchiæ, the larynx, and trachea. A very severe attack of hooping cough, although recovered from, as far as its paroxysms are concerned, is apt to degenerate into pulmonary disease, or visceral obstructions, in which latter case, the mesenteric glands are found in an indurated and enlarged condition.

Treatment.—In the early stages of this affection palliative measures can be alone employed by the judicious practitioner; small and repeated doses of the oxymel of squill, or slightly nauseating draughts of tartarized antimony, together with occasional purgatives, will frequently be all that is required, and a change of air, if permitted by the season, will readily complete the cure. Where much irritation prevails, the spasm during the paroxysm being violent, and the expectoration small, it will be prudent to withdraw a few ounces of blood, either by the lancet or the employment of leeches, afterwards applying a blister to the chest, and inhaling the steam of warm water three or four times daily. An occasional dose of opium at bed time, on the exhibition of a few grains of Dover's powder, will assist in promoting diaphoresis and expectoration. An emetic has been found extremely serviceable where the cough is hard and dry, and may safely be repeated every second or third day, until a discharge of the phlegm is accomplished. In some constitutions the use of conium and assafoetida has been productive of singular advantage, particularly the former, which may be commenced in very small doses, and gradually increased. Upon the approach of convalescence, an extreme degree of debility is not uncommon; this may be relieved by the mineral tonics, or what is still better, the sulphate of quinine, a medicine alike appropriate to all ages. Opiate frictions to the breast, a removal to a milder climate, the cautious use of the cold bath, and light and nourishing diet, are all addenda, which may be summoned, if within the means of the patient. Some confidence was formerly reposed in the use of cantharides, even to the production of a slight degree of strangury, but few physicians would at present resort to the practice.

The application of stimulating liniments to the region of the stomach, and the spinal column, is still recommended by some authors, and others perhaps with more reason on their side, prescribe small doses of the acetate of lead, either with or without the addition of opium. Dr.

Parsons, who obtained considerable celebrity in the treatment of whooping cough, recommended the following draught : for children of one or two years old, R Tinct: Opii mj, Vini Ipecacuanhæ mv ; Sodæ Carbonatis gr. ij, Syrupi, qd st ul fial Haustus quarta quaque hora sumendus, having previously cleared the stomach by an emetic.

Of late years the prussic acid, administered by a cautious hand, (Schæpel's preparation is usually made use of,) has been recommended, and from several reported cases, the remedy is entitled to the attention and confidence of the profession. In addition to the various treatment we have described, the preparations of musk, camphor, and hyoscyamus, have also met with many and successful trials. See, on this subject, the works of Sydenham, Fothergill, Perceval, and Armstrong ; Underwood "on diseases of children ;" Watt on "chin-cough," (as the disease has been termed in some districts,) and Bateman in Rees' Cyclopaedia.

HOP—*Humulus*, the ground, so called from its creeping along the ground, if deprived of support. *Humuli Strobuli*, the strobules of the humulus supulus, a plant of the class diœcia, and order pentandria. Sometimes employed in medicines as a narcotic, anodyne, and diuretic, in the forms of infusion, extract, and powder. An infusion made in the proportion of ʒss to a pint of boiling water, has occasionally afforded relief in cases of gout and rheumatism, and the powder formed into an ointment with lard, has been said to ease the lancinating pains of a cancerous sore. A pillow stuffed with hops, says Dr. Thompson, is an old and successful mode of procuring sleep in the watchfulness of delirious fever.

Dr. A. W. Ives, of New York, discovered that the valuable and characteristic qualities of the hop reside exclusively in a substance forming not more than one sixth of its weight, and separable from it by threshing and sifting ; to this he attached the name of lupulin, which has sometimes been used in medicine in a variety of preparations.

Official preparations of the Hop.—Extract of hops (extract humuli) gr: v to ʒi in pills. Tincture of hops (tinctura humuli) ʒss to ʒiij. These, however, are seldom employed, nor is much confidence reposed in the virtues of the plant itself by the medical world.

HORDEOLUM—(diminutive of *hordeum*, barley.) A little tumour on the eye lid, resembling a barley-corn.—See *Eye, diseases of*.

HORE-HOUND—*Marrubium*.—A plant of the class didynamia, and order gymnospermia ; in operation tonic, diuretic, laxative, and emmenagogue, formerly adminished in cases of hysteria, chronic catarrh, and in obstructions of the catamenia, but now seldom employed. Dose—in powder ʒss to ʒj ; of the expressed juice ʒss to ʒiiss or of an infusion made with ʒss of the leaves to a pint of water, a wine glass full two or three times a day.

HORSE-RADISH.—*Armoracia Radix*, the root of the *Cochlearia armoracia*, a plant of the class tetradynamia, and order siliculosa. Employed in medicine as a stimulant and diuretic, in cases of scorbutus, rheumatism, and dropsy. Sydenham praises the merit of this root, as a remedy in those cases of dropsy, sometimes succeeding intermittent fever—dose, of the substance $\mathfrak{z}\text{i}$, scraped or swallowed whole, or of the compound infusion (infusum amoraeciae compositum) $\mathfrak{z}\text{i}$ to $\mathfrak{z}\text{ij}$ twice or thrice a day.

Dr. Cullen was accustomed to recommend the following syrup to be swallowed slowly in cases of hoarseness.

R. Of the scraped root $\mathfrak{z}\text{i}$ —boiling water $\mathfrak{z}\text{ij}$, sugar sufficient to sweeten the strained liquor.

A compound spirit (spiritus armoraciae compositus,) is occasionally prescribed as an useful adjunct to digitalis, in dropsies attended with much debility—dose $\mathfrak{z}\text{i}$ to $\mathfrak{z}\text{iv}$.

Horse-radish, and its preparations, are *incompatible* with all the alkaline carbonates; the oxymuriate of mercury, the nitrate of silver, infusion of galls, and yellow cinchona bark.

HOSPITAL GANGRENE—See *Gangrene*, in article *Inflammation*.

HYDARTHUS—(from *ὕδωρ*, water, and *αρθρον*, a joint,) *white swelling*. The spina ventosa of the Arabian authors.—See *joints, diseases of*.

HYDATID, (from *ὕδωρ*, water.) A small animal formed like a bladder, and distended with an aqueous fluid, sometimes formed in the natural cavities of the body, as the abdomen, and the ventricles of the brain, but more frequently in the liver, kidneys, and lungs, where they produce diseased actions of the viscera.

“Hydatids adhering to the *heart* are very rare, and were unobserved throughout the extensive practice of Dr. Baillie. In the *cavity of the pleura*, they are also unusual; in the 5th vol. of “*l’Anatomie Medicale*” par Portal, an instance, however, is afforded of their occurrence. They are sometimes formed in the *lungs*, and many have been brought up by coughing. Hydatids have been found in the *abdomen*, occupying a portion or even the whole of its cavity, and are usually connected with the viscera, particularly the liver and spleen, although in some instances they are not attached to any viscera, or any part of the peritoneum. When they are accumulated in large quantities, it is difficult to distinguish this disease from ascites. In the case of hydatids, the feeling of fluctuation on striking the abdomen with the hand will either take place very indistinctly, or not at all; whereas, in ascites attended with no extraordinary symptoms, it is always distinct. The swelling in ascites is uniform, but in an accumulation of hydatids more or less unequal, and in the latter it will always begin in some determined situation, whilst in the former, there is a gradual swelling of the whole abdomen.

It is still more difficult to detect an accumulation of hydatids from a dropsy of the ovarium. In the latter, the swelling is first perceived on the side of the lower part of the belly, and it gradually increases upwards; so as to occupy a great part of the cavity of the abdomen. As hydatids most commonly grow from the liver, the swelling in this case will generally be first sensible at the upper part of the belly, and then spread downwards; it must, however, be recollected that hydatids may be formed in any part of the abdomen, and therefore, were they to commence at the side of the lower part of the belly, it seems hardly possible, except from the history of the case, to distinguish the one disease from the other."

"Hydatids have also been occasionally found adhering to the mesentery."

"There is no gland in the human body, except the kidneys, in which hydatids are so frequently found as in the liver. Hydatids of the liver are usually found in a cyst, which is frequently of a considerable size, and is formed of very firm materials, so as to give to the touch almost the feeling of cartilage. This cyst, when cut into, is obviously laminated, and is much thicker in one instance than in another. In some livers it is not thicker than a shilling, and in others, it is nearly a quarter of an inch in thickness. The laminæ which compose it are formed of a white matter, and on the inside there is a lining of a pulpy substance, like coagulable lymph. In a cyst may be found one hydatid, or a greater number of them. They lie loose in the cavity, swimming in the fluid; or some of them are attached to the side of the cyst, and consist each of a round bag, which is composed of a white, semi-opaque, pulpy matter, and contains a fluid capable of coagulation. Although the common colour of the hydatids is white, some are of a light amber colour. The bag of the hydatid consists of two laminæ, and possesses a great contractile power. In one hydatid, this coat, or bag is much thicker and more opaque than in another, and even in the same hydatid, different parts of it will often differ in thickness. On the inside of an hydatid, smaller ones are sometimes found, which are commonly not larger than the heads of pins, but sometimes they are even larger than a gooseberry. These are attached to the larger hydatid, either scattered at irregular distances, or in small clusters; they are also found floating loose in the liquor of the larger hydatids. Hydatids of the liver are often found unconnected with each other; but sometimes they have been said to enclose each other in a series, like pill-boxes. The most common situation of hydatids of the liver is in its substance, and inclosed in a cyst; but they are occasionally attached to the outer surface of the liver hanging from it, and occupying more or less of the general cavity of the abdomen.

The origin and real nature of these hydatids are not fully ascertained ; it is extremely probable, however, that they are a sort of imperfect animalcules. There is no doubt that the hydatids in the livers of sheep are animalcules : they have been often seen to move when taken out of the liver and put into warm water, and they retain this power of motion many hours after a sheep has been killed. The analogy is very strong between the hydatids in the liver of sheep, and in that of the human subject. In both they are contained in strong cysts, and in both they consist of the same white pulpy matter. There is undoubtedly some difference between them in simplicity of organization ; the hydatid in the human liver being a simple uniform bag, and the hydatid in that of the sheep having a neck and mouth appended to the bag. This difference, however, need be no real objection to the opinion above stated. Life may be attached to the most simple form of organization. In proof of this, hydatids have been found in the brains of sheep, almost exactly resembling those in the human liver, which have been seen to move, and, therefore, are certainly known to be animalcules. The hydatids of the human liver, indeed, have not been found to move when taken out of the body, and put into warm water ; had this ever happened, no uncertainty would remain."

"In some rare cases the *gall bladder* has been distended to an enormous size by the accumulation of hydatids, which have also been discovered in the *spleen*."

"In the *kidneys* the formation of hydatids is not a very uncommon disease ; in some instances there are but one or two on the surface of this organ, whilst in others they are more numerous ; they do not appear to be of the same nature as hydatids of the liver, not being inclosed in firm cysts and with thinner coats, and not so pulpy in substance."

"Large masses of hydatids have also been found in the cavity of the uterus, and sometimes attached to the *placenta*, during gestation ; they differ in some respects from hydatids formed in other parts of the body, consisting of vesicles of a round or oval shape, with a narrow stalk to each, by which they adhere on the outside of one another ; some being no bigger than the head of a pin, whilst others are of the size of a walnut."

"Little cysts containing water, which are generally called hydatids, have been seen adhering to the *pia-mater*, but this is a very rare appearance of disease."—(*Baillie's Works by Wardrop*.)

HYDRAGOGUE—(from *ὕδωρ*, water, and *αγω*, to drive out,) a term applied to that class of medicines, which possess the property of increasing the secretions or excretions of the body, so as to cause the removal

of fluid from any of its cavities ; thus cathartics and diuretics may, to a certain extent, be regarded as hydragogues.

HYDROCELE—(from *υδωρ*, water, and *κηλη*, a tumour.)—See *Testicle, diseases of*, to which division of the work, this subject is attached.

HYDROCEPHALUS—(from *υδωρ*, water, and *κεφαλη*, the head.) Dropsy of the brain—dropsy of the head.—See *Hydrops*.

HYDROPHOBIA—(from *υδωρ*, water, and *φοβω*, to fear.)—*Rabid madness*.—This dreadful calamity of which we have usually many examples every year, is a disease that may be traced to certain tribes of animals, by whom it is communicated by bite, from one to another, and to the human species.

The animals most subject to rabies are the dog, the wolf, and the cat, and in them it arises without any *assignable* cause ; its occurrence has been attributed to the heat of summer, the cold of winter, vicissitudes of temperature, or the deprivation of an accustomed supply of water. If great heat, however, were alone necessary for its production, we might expect numerous instances of it in Jamaica, where it is exceedingly rare, or in Antigua, where, unfortunately for the hypothesis, it is almost unknown. In Egypt, Syria, and at the Cape of Good Hope it has not been observed, and instances might be multiplied to prove a want of connexion between a high temperature and this destructive disease. From the inquiries of Mr. Troillet, the author of an able memoir on this subject, it appears that in the month of January, the coldest, and in August, the hottest month in the year, the smallest number of cases have on an average occurred. If the malady depended upon intense cold, we should hear of frequent instances in Labrador and the northern nations, among the vast tribes of dogs who are rendered subservient to the use of man, and also in Poland where, during the severe winters, thousands of half starved dogs infect the towns : but in these situations canine madness is comparatively rare. The want of wholesome food can scarcely account for its production, since animals are frequently fed upon putrefied animal substances, without contracting the disease ; and as an example of this fact, we may mention the custom of supplying the hounds in England, with the most offensive horse-flesh. In Lisbon, where there are, perhaps, more dogs, in proportion to its size, than in any European capital, hydrophobia but seldom occurs, and this happy exemption has been attributed to the plentiful supply of water, secured for these animals by placing troughs for their use throughout the city, and if we regard this circumstance in connexion with some of the reports on the disease, which state its prevalence in situations where animals were deprived of their customary drink, we may, at all events, admit this circumstance as a predisposing, if not the proximate cause.

There is some degree of obscurity, as to the first symptoms of the

disease in the lower animals ; but its existence should be suspected as soon as the animal becomes dull and heavy, seeking solitude and obscurity ; when he appears peevish and snappish, and is easily offended. At the outset of the disorder, he is constantly agitated, refuses his accustomed food and drink, hangs down his head, with his tail between his legs ; though he still knows his master, he is not, as usual, pleased at the sight of him ; he does not hark, but has a plaintive howl, leaves his accustomed abode, running about with his mouth open, his tongue hanging out, and a quantity of viscid foam dropping from it. The eyes have a peculiar brilliant expression. Soon the characteristic symptoms appear : he is tormented by thirst which he cannot quench, from the difficulty or impossibility of swallowing liquids ; he seizes upon all animals that happen to come in his way, sometimes also upon men, and his master is not spared. In some instances, swellings about the throat and tongue have been observed before death. Dogs have been known to leave the house of their owners, and return to it, after having bitten animals, eat and drink as usual, and soon afterwards die rabid. It is very questionable whether dogs really have any dread of water, as the name, hydrophobia, imports, for they never avoid it. They will pass through it, and even lap it for a length of time, but it would appear that none is swallowed, as the quantity of fluid in the vessel is not diminished.

According to M. Meynell, the disease never appears in dogs in less than ten days after the bite has been inflicted ; and death generally takes place from seven to ten days after the first symptoms have appeared. He has, moreover, known many instances of dogs having died mad, as late as eight months after the bite. They appear capable of communicating the disease as soon as they begin to quarrel with other dogs, and before the characteristic symptoms appear.

With regard to the disease as it occurs in the human species, its spontaneous origin can by no means be admitted. It is true, that the single symptom hydrophobia, or dread of water, does occasionally occur, independent of the introduction of this poison ; but then it is always in connexion with some other disease, as hysteria, or epilepsy, or inflammation of the brain ; it occurs also sometimes as a fatal symptom of St. Vitus's dance ; and there are one or two cases on record, where it was an attendant upon inflammation of the stomach ; but it is not the disease, it is only one symptom of it, which differs in degree in different individuals. It may with confidence be asserted, that the cases published as examples of the spontaneous origin of rabies in the human species were not the genuine hydrophobia, but cases of other diseases, in which a dread of water occurred as an accidental symptom.

There is nothing peculiar in the wound to distinguish it from the bite of a dog that is not mad, and it heals as soon ; from the period of

the bite till the first symptoms appear, there is little, if any, derangement of the health, nor any perceptible change in the constitution, provided the person bitten be not under the influence of fear. When the poison begins to produce its effects, there is generally some degree of pain or disagreeable feeling in or about the wound, and this is generally described as following the course of the nerves supplying the part; frequently there is swelling and inflammation, and even a fresh discharge from the wound a short time before the symptoms appear. In several cases where pain and uneasiness were complained of in the course of the nerves, these parts were minutely examined after death, but no unusual appearances could be detected. The period at which the first symptoms appear varies considerably in different patients, from a few days to several months. The shortest interval is mentioned by Trollet as three or four days, and the longest that of seventeen months, by Dr. John Hunter; and this is giving a greater latitude than is generally required. Of the fifteen cases related by Trollet, in seven, the disease commenced between the fourteenth and thirtieth days; in five, between the thirtieth and fortieth; in two, between the fortieth and fifty-fifth, and in one, after three months and a half had elapsed. There can be but little doubt that the invasion of the disease may be hastened by different causes; in some it has been fear, in others exposure to the ardent rays of the sun, and it is not improbable that excesses in eating and drinking, great exertion of body and mind, and prolonged night watchings, may have had similar effects.

The first symptoms of the disease, after the pain and uneasiness about the wound, are, pain or heaviness of the head, sometimes general and deep seated, at others slight; great depression of spirits, anxiety, and restlessness; fear, which has been mentioned as a cause of the invasion, now becomes a symptom, and increases with the progress of the malady; the functions of the mind become excited, the memory is more retentive, the conceptive faculty casier, and the imagination more fertile; there is a peculiar kind of delirium, during which the patient talks rapidly and incessantly of objects which either do not exist about him, or of past events as if they were actually present; sometimes there is somnolency or taciturn melancholy. The organs of the senses have acquired a higher degree of sensibility; there is constant rolling of the eyes, which are more opened, from the elevation of the upper eye-lid; they have an unusual brilliancy, and in some cases the pupil is very much dilated; most frequently the motions of the voluntary muscles are inordinately excited, and would seem to overact the intention of the mind, as every thing which the patient does is performed with great hurry and agitation, and there is an almost incessant and violent jactation. The organs of digestion are also affected, and hence arises in

some cases nausea and efforts at vomiting, and sometimes actual vomiting and pain at the pit of the stomach. The pulse becomes very frequent, and fuller than natural; in some instances the respiration is slow, but more commonly it is increased in frequency, and there is a loss of relation between the pulse and respiration. Frequent sighing is a pretty constant attendant. But the characteristic symptom is the dread of water, or rather difficulty and impossibility of swallowing liquids, and this, as has already been observed, varies in degree in different individuals. The patient is tormented with thirst; and, on attempting to drink, violent convulsions of the muscles about the larynx, pharynx, and fauces, are excited, producing a sensation of choking or suffocation. Perhaps a better idea cannot be given of this symptom than by comparing it to that agitation which a person, who is afraid of the water, experiences when he is suddenly pushed into it against his will, when the chest becomes agitated with convulsive motions, during which short inspirations succeed to a rapid expiration. At a later period, the patient cannot even look at liquids, without experiencing this distressing symptom, which has, according to some very respectable authors, been produced by the sight of a looking-glass, a transparent glass, or shining piece of metal, and even by the agitation of the air. In the course of the disease, this symptom is diminished or ceases entirely, for a time, but soon returns, and the convulsions extend over the whole body. Without this peculiar strangulation, or affection of the respiratory organs, the characteristic symptom of the disease is absolutely wanting.

To the above symptoms may be added, a sensation of burning heat, sometimes referred to the stomach, sometimes to the chest; the almost constant flow of thick foam from the mouth, which, as disease proceeds, becomes so viscid that the patient cannot expectorate but with very great difficulty; he is constantly spitting it out with great vehemence, and it is only by sudden and strong expirations that he is able to remove it. The skin is covered with clammy perspiration. Towards the close of the disease, when the muscular power is on the decline, the pulse becomes small, soft, very feeble and irregular; and this generally points to an immediate death, which sometimes seems the effect of suffocation; occasionally the patient expires in the midst of convulsions, but it is much more common for him to sink rapidly, and become quiet and calm for a short time before the fatal event takes place.

Never does the patient utter any sound that can with any degree of propriety be compared to the barking of a dog; but his voice is frequently very hoarse and rough; nor can much credit be given to those authors, who mention a desire to bite as one of the characteristics of rabies.

The duration of life after the appearance of the hydrophobia varies from twenty-four or thirty-six hours, to three, four, or five days.

In whatever part the wound is made, its danger is in proportion to the nakedness of the part bitten, for it is reasonable to suppose that the teeth of a dog, in penetrating through thick woollen or leather clothing, will be wiped clean in proportion to the degree of resistance made by such materials, and thus lessen the danger; but, although the danger be lessened, it is not removed; for when the skin is abraded in ever so slight a degree, the saliva and virus may be carried thither on the tooth, and the smallest imaginary particle is equally to be dreaded, and perhaps more so by the practitioner, than a larger wound, because he finds a greater difficulty in persuading his patient that such an insignificant scratch requires as much attention as a wound of large dimensions, and perhaps more, on account of its not bleeding.

The instant a person is so unfortunate as to have been bitten by a real or supposed rabid animal, he should, without the loss of one moment, resort to the nearest pump, stream, or pool of water, and there continue to wash, wipe, and sponge the part so as to remove all saliva from the wound, as well as from the surrounding parts. In the meantime, let a tea-kettle of hot water* be made ready, and, from a considerable height, continue to pour the hot water until the nearest practitioner arrives, to take the responsibility of management into his own hands.

Syringing with warm water those parts where it would be difficult effectually to employ ablution, answers a good purpose; and the wounds may again be syringed with a caustic wash, composed of about twelve ounces of water, with the addition of two ounces of the liquid of pure ammonia. Having continued this plan for at least three or four hours, the next business the surgeon has to perform is, to cut away all ragged and uneven parts of the wound, and to dissect away the bottom and sides, so as to reduce the laceration to the state of a simple incision. After which, he should still pour more warm water from a height, and thus encourage the bleeding which his incisions have caused. The water having now more freedom of entering and carrying out all lodgment from the sinuosities and excavations of the wounds, the patient becomes still more secure.

It has been suggested that excision should be employed as soon as the surgeon arrives, but no incision should be made in the lacerated or wounded parts at this time, lest the scalpel might perchance take up

* When hot water is spoken of, it is not meant to be hot enough to excite inflammation, but to render it more capable of dissolving and washing away saliva; it may suffice to be little above blood heat, or agreeably warm,—say about 95 or 100 degrees of Fahrenheit's thermometer.

any portion of the virus, and carry it further on with its edge, thus inoculating the more remote parts with which it comes in contact. The previous ablution renders this accident less likely to occur, and the bleeding will also tend to clear away any impregnated saliva, which might by chance have been driven farther into the muscular fibres and cellular membrane than the syringing had reached. When both patient and practitioner are exhausted by this prompt, energetic, and continued treatment, the wound, instead of being attempted to be healed by the first intention, should be dressed with a cataplasm of bread and water, upon the surface of which, an ounce of strong mercurial ointment should be spread. Instead of mercurial cataplasm, a suppurative ointment, may in some cases be applied, composed of about one ounce of cerate of black pitch, two drachms of balsam copaiba, and one drachm of red precipitate of mercury.

A proper state of digestion in the wounds cannot be too speedily excited, as it is a well known fact, that *pus laudabile* is a powerful corrector of animal poisons. Whichever of the before mentioned suppuratives is resorted to, about two drachms of mercurial ointment rubbed gently into the parts surrounding the wound, and every endeavour to excite ptyalism by frequent mercurial frictions near the wounds should be resorted to. The cataplasm should be renewed with half an ounce mercurial ointment every eight hours, rubbing in a little more ointment each time to bring about ptyalism as speedily as possible.

Could a hollow catheter of elastic gum be introduced into the œsophagus by the mouth or nostrils, and liquid nourishment be thus conveyed into the stomach? Desault mentions a case where, in an ulcer of the mouth, such catheter was introduced by the nostrils, and kept in the œsophagus for a month, by which means the patient was nourished and preserved.

In some cases, after ablution has been fully used, the muriate of antimony may be applied, particularly where the knife cannot be so adroitly employed as to prevent deformity. After this, the same cataplasms as are mentioned above, as also salivation, should immediately follow; the liquor of pure ammonia, diluted, is the best application, on account of its solvent property, and should be used with a forcible syringe; and as a further security in the local treatment there can be no objection to a trial of the oxynuriatic acid to the wounds.*

HYDROPTALMIA—(from *ὕδωρ*, water, and *ὀφθαλμὸς*, the eye.)—An œdematous swelling of the eye-lid is sometimes so called, but the term is more properly applied to that condition of the bulb of the eye,

* See Troiliet's "Nouveau Traite de la Rage;" Sully's Observations on Hydrophobia; and the first and second volumes of the Med. Chir. Trans.

when a swelling is occasioned by too great a secretion of the aqueous or vitreous humours.—See *Eye*, diseases of.

HYDROPS—(from *ὑδωρ*, water,) *Dropsy*.—A morbid collection of water in the cellular substance, or different cavities of the body, receiving distinct appellations, according to the situation in which the disease occurs.

The circumstances attending an accumulation of water in any part of the system are various, although the common predisponent cause is debility. Individuals who have been exposed for a considerable time to cold or damp, who have been reduced by hardship and deprived of their accustomed aliment; those who have long suffered under febrile action, laboured under dyspepsia, or injured the system by intemperance, and especially those who have been subjected to hepatic attacks, have ever been the ready victims to this disease. In what precise manner the accumulation takes place, whether by an increased exhalation from the terminating arteries, or by a torpor of the absorbent vessels, when the usual secretions are retained in the situations of their deposition, or whether both causes are concerned in the production of the malady, may be still considered a subject of some uncertainty. We have the authority of Dr. Bateman for supposing that increased effusion is most frequently the cause of dropsy, and that the absorbents are only so far concerned in not being able to carry off the increased quantity submitted to their action.

It cannot certainly be denied that dropsy is the frequent accompaniment of debility, and we recognize it as such, particularly after frequent depletions by venesection, or the continuance of any excessive periodic discharge; still there are numerous cases of debility in which no symptoms of dropsy ever appear, when we are compelled to examine the economy of the system yet more closely, ere we can pronounce with certainty upon the origin of the affection. In disease of the liver, for instance, an obstruction of the circulation in the system of the *venæ portæ* may occur, in consequence of which the arterial stream is retarded, and a stimulus thus applied to the exhalents by distention of their trunks; an interruption of the flow of venous blood may take place from disease of the right auricle of the heart or its valves; the gravid uterus may press in an unwonted manner upon the venous channels and stay the current towards the heart, inducing the frequent consequence of œdema of the legs in pregnant women; diseases of the veins themselves, aneurisms of the principal arteries, or tumours in their vicinity, may all alike operate in such a disturbance of the circulation, as to throw more upon the exhalents in the shape of effusion, than the absorbent vessels can possibly remove.

To any of these causes must be added, the result of inflammation,

sometimes succeeding to distention, by which a larger quantity of fluid is effused, and this is particularly observable when the ventricles of the brain are filled after inflammation of that organ, or in a case of carditis when the pericardium is surcharged with effused fluid. Dr. Stoker, of Dublin, in the consideration of this particular, has divided the disease under review, into two varieties, one depending upon an increase of action, when inflammation is superadded to its original cause, and the other upon a decrease, when dependent upon a torpor of the venous system, from whatever circumstance such may arise; the first he styles dynamic, and the second adynamic dropsy.

The French physiologists have assumed a condition of the skin under which dropsy may occur, by absorbing moisture too freely from the atmosphere, the blood being thereby reduced to a degree of thinness, that is in itself a source of dropsy, as passing more readily from the extremities of the arteries into the exhalent vessels. The researches of Dr. Bright have likewise thrown some light upon the nature of dropsy; this physician regarded the morbid changes to which the kidney is subject as a frequent cause of serous exhalation, and in every instance where such diseases existed, he noticed the discharge of albumen with the urine. As connected with this subject, it may be remarked that in Dr. Bostock's experiments, the secretion of albumen appeared always to be attended with a diminished secretion of urica, and of the salts of the urine. Dr. Bright also observes that "when in dropsy, the liver, or heart, or both have been found diseased, and not the kidneys, the urine was never observed to be albuminous."

Thus it will appear, before we consider the peculiar varieties of dropsy in different situations, how many various causes may tend to its existence; from acute or chronic diseases in particular organs, from circumstances that may owe their origin to original formation, or from some singularities affecting the circulation arising from primary excess or secondary debility.

CELLULAR DROPSY may extend throughout the whole body, or be confined to the cellular membrane of the limbs, and particularly of the feet and ankles; it may likewise exist apparently as a local affection, occasioning more inconvenience in the evening, or be attended with a painful and perhaps a fatal dyspnœa, as the swelling advances towards the trunk.

In its slightest form, cellular dropsy is usually symptomatic of some other affection, such as chlorosis, suppressed catamenia, or other discharge, or perhaps induced by the weakness remaining after fever or other diseases. In general it is the complaint of advanced life, the commencing symptom œdema of the feet and ankles being only observed towards evening, which is relieved by assuming the recumbent posi-

tion. As the disease advances, the thighs and hips become affected, afterwards the trunk, and at length the head, when the face and eye-lids are bloated, and the complexion becomes sallow and characterized by an anxious expression: the skin has a doughy feel and pits beneath pressure, and a general inactivity of the whole system rapidly ensues. The pulse is slow and heavy, the bowels costive, the urine scanty and of a deeper colour than usual, the respiration oppressed and sometimes accompanied by a cough; the appetite fails, and an unquenchable thirst is complained of. The skin will frequently give way in some parts of the body, and the confined fluid accumulates in bags, or the cuticle bursts and permits its constant escape, giving rise to excoriations and troublesome sores.

Under these circumstances, the difficulty of breathing that is so frequent a symptom, arises partly from the overloaded state of the lungs, and partly from the weakness of the respiratory muscles; the pulse then becomes feeble and irregular, and death occurs sometimes from rapid exhaustion, or after years of protracted suffering.

The treatment of this disease in particular, and of dropsical complaints in general, depends in a great degree upon the system of the sufferer, and upon the primary cause of attack. We have to look beyond the existing symptoms, and to subdue that morbid influence upon which an increased effusion is dependent; in chlorosis, the uterine function must in the first place be re-established; in intemperance, the depraved habit must be checked; in short, whatever the prevailing cause may be, that must first be attended to before any measures of relief to the part or parts affected are attempted. We may occasionally meet with instances where the cause has altogether disappeared, and the dropsy merely remains as an effect, and here we need not hesitate in counteracting the mischief already accomplished, by the most ready means within our ability.

A great deal has been written respecting the use of hydragogues, or that class of medicines, which act powerfully on any of the excretions, and of these, purgatives are entitled to the first attention. Calomel, scammony, colocynth, jalap, and likewise the convolvulus scpium, (greater white bind-weed,) have been indiscriminately employed, and each with advantage under those circumstances that favoured its specific operation. The croton oil has also been highly recommended as a powerful cathartic, but the violence of the action of this remedy frequently forbids its employment in those individuals who have already been weakened by continued indisposition. The same may be asserted, although in a less degree of elaterium, or the inspissated juice of the wild cucumber, a most powerful and drastic purgative, the use of which in dropsies, has been recognised nearly in every practice. It may be

administered in doses of from half a grain to two grains, repeated every two or three hours for five or six times, and especially where the dropsy is of a cold and indolent character from local or general atony. In addition to these, a number of other remedies have been proposed, such as the expressed juice of the elder tree and dwarf elder, the melampodium or black hellebore in watery infusion or extract, and the senega root, which latter has derived a very high character, from its frequent use among the Senegal Indians, as an antidote to the bite of the rattlesnake; it operates powerfully both by the bowels and kidneys. The super-tartrate of potash or cream of tartar, is perhaps one of the most available medicines, and especially in cellular dropsy; when taken in ounce doses, it acts potently as a cathartic, and excites the absorbents more than any of the entirely neutral salts.

In the *Med. Chir. Trans.*, vol. 5, Dr. Somerville highly extols the use of the *pyrola umbellata*, in the form of its extract, of which five scruples may be given in the twenty-four hours, and as this plant is procured in great quantities in this country, it may be tried with convenience, and certainly, with safety as a diuretic.

The practice of treating dropsy by the administration of emetics has considerably declined, although ancient testimony was decidedly in its favour. The absorbents are certainly excited into greater activity by the act of vomiting, still the weakness occasioned, has frequently forbidden their employment, except in those cases of local effusion, where the system at large was not materially affected. We may, however, still continue this practice, either with or without muscular pressure, where the debility of the patient is not too great.

Diaphoretics, form another class of medicines, in which some confidence has been placed in the cure of dropsy, but in the great majority of instances they can only be relied upon as auxiliaries; their action, indeed, cannot be sufficiently extended without producing such a degree of relaxation as tends to promote the effusion they are intended to retard.

Diuretics are far more valuable, from the sympathy they create in the intestines, the lungs, and the skin with the kidneys; they include a number of medicines, all of which have met with approval at various times, and under various circumstances. *Digitalis*, or fox-glove, has been extensively employed both in decoction and pills, continuing its use until the stomach was nauseated; and so far from this powerful sedative and diuretic being injurious to patients in the weakest stage of dropsy, it is evident from the observations of Dr. Withering, (see his *Essay on Digitalis*, p. 189;) that individuals of enfeebled or delicate habits are less affected by it than those of firm fibre; and hence one reason that has been advanced for its abandonment must fall to the

ground. The whole alliaceous tribe of plants has been administered with great advantage in dropsical complaints ; squill in particular, and when added to a neutral salt, its determination to the kidneys is prompt and efficacious. It may be observed that the dried squill should always be preferred to the fresh root, as the latter being more acrimonious is frequently thrown off by stool, occasioning at the same time much griping, and even sometimes sickening the stomach. The colchicum autumnale is another medicine of undoubted efficacy in dropsy ; it may be conveniently given in the form of oxymel, that is, by infusing the root in vinegar, and afterwards adding twice the quantity of honey in doses of a drachm every six hours, gradually increased to an ounce ; or in that of the wine of the seeds, as recommended by Sir Everard Home. The acetate of potash, the root of the dandelion, tobacco, juniper berries, hedge-hyssop, and other remedies have been severally proposed as diuretics ; but they yield in virtue to the digitalis and colchicum, which, under proper care may be regarded as the principal agents in thus combatting the disease.

The external means of evacuating the fluid in cellular dropsy, are blisters, setons, issues, punctures, and scarifications. The two last of these methods are generally employed as the least troublesome, as well as attended with the least risk. The use of blisters, indeed, is nearly exploded, from the sores they leave behind, and which are apt to run into gangrene, and the same may be said of extensive scarifications made upon the surface of a very debilitated patient ; the easiest method of discharging the fluid is therefore by small lancet punctures, which afterwards heal without any trouble.

Thus far we have considered the modes by which the effused fluid in dropsy may be evacuated ; the duty of the physician does not, however, end here—he has relieved the suffering, and now he has to attempt a radical cure of the disease, which if left to itself, would in all probability lead to a recurrence of the previous symptoms.

The constitution, then, must be invigorated, and those organs that have been the seat of the disease, restored to a healthy state.

When the prevailing debility does not depend upon visceral obstruction, the employment of bitters is particularly advisable, as in addition to their tonic qualities, they have a tendency to moderate that exhalation into the cavities, constituting the disease ; so that there is a greater proportion of serum carried to the kidneys, and thus bitters may act as a diuretic. The metallic oxydes, particularly those of copper, have likewise been recommended either singly, or in conjunction with bitters, and there is sufficient medical testimony to justify the practice.

When dropsy is evidently dependent upon visceral obstruction, the

external and internal use of mercury appears to promise the most successful result; if the habit be feeble, small doses of calomel must only be ventured, but in other cases ptyalism may be produced with the most essential benefit.

These remedial measures adapted to the condition of the patient, may be accompanied by a light and nourishing diet, avoiding all food of an exciting nature, and particularly selecting such kinds, as are proved by experience to be easily digested.

There are some few cases in which the use of the lancet may be demanded; either when inflammatory action is recognized, or when the stimulus to the exhalents is applied from a retardation of the blood in the veins, and its consequent accumulation in the arteries; these states demand the closest attention and judgment of the practitioner, as the incautious practice of venesection will extend the evil it is intended to remove.

It has been a subject of remark, that the intolerable thirst in dropsy should not be too eagerly relieved, inasmuch as the kidneys are not in a condition to carry off any considerable quantity of fluid, which is therefore poured into a cavity or into the cellular membrane, but Sir Francis Milman has satisfactorily shown that a much greater extent of mischief is occasioned by a denial of the craved indulgence, than by allowing it free latitude; in the first instance, the solid food remains a hard and undigested mass in the stomach, and in the second, the power of the strongest diuretics is rendered unavailable, unless assisted by diluting fluids. To these reasons may be added one of as strong a character, that as the thirst and feverish symptoms increase, the surface of the body absorbs a larger portion of moisture from the atmosphere than could be derived through the medium of the stomach, and thus the very circumstance that is the most dreaded, is brought about by the conduct adopted to avoid it. It may, then, be said that it is needless to restrict the patient to a painful degree of abstinence in the use of fluids, although at the same time he may be cautioned to avoid excess.

ASCITES—*Hydrops Abdominis, Dropsy of the Belly*.—This form of the disease may arise from any of the causes capable of inducing cellular dropsy, or it may be occasioned by inflammation of the peritoneum, which, as a serous membrane, is capable of such a result, when of course, the effusion arises rather from an increased action of the vessels, than from their relaxation and debility.

Ascites may, therefore, be preceded by that general debility of the system that serves both as the cause and the introduction of other dropsies; it may derive its origin from the indurated enlargement of one or more of the abdominal viscera, and lastly, it may succeed gout or repelled cutaneous eruptions.

The fluid is either collected within the peritoneum in one complete sac, when it is called *peritoneal dropsy*, or in one or more separate bags in the omentum or sides of the intestines, when it is termed *encysted*; the latter being more common in the female, when it is sometimes seated in the ovaria, and dependent, as presumed, upon hydatids.

When caused by enlargement of the viscera, the liver is more frequently the seat of disease than any other organ; the gall-bladder being at the same time proportionately affected.

Ascites has in some cases been mistaken for pregnancy, and under some circumstances the diagnosis is not so easy as might be apprehended, as towards that period of life when the catamenia are on the point of departure, the very probability of pregnancy is suspected, and the enlargement consequently attributed to dropsical enlargement. The surest means of discrimination must depend upon close inquiry and examination, by searching for the distinctive characters of dropsy and pregnancy, and by an accurate investigation of the early symptoms, which will throw the strongest light upon the succeeding appearances. It sometimes happens that dropsy and pregnancy will appear at the same time, and in such cases it may be prudent to withdraw the weight of fluid from the uterus, as early as possible by tapping, taking care at the same time to permit a gradual evacuation, lest the sudden re-action of the abdominal muscles and their enclosed organs should induce a miscarriage. Searpa, in such cases, advises the trocar to be introduced between the edge of the rectus muscle in the left hypochondrium and the margin of the false ribs, in order to avoid the possibility of injuring the uterus.

The *symptoms* of ascites are nearly the same as those of general dropsy; the same want of appetite, listlessness and debility, dryness of the skin, insatiable thirst, and cessation of the natural discharges are apparent, whilst the prominent symptom is the gradual enlargement of the abdomen, accompanied by a dry, irritable, cough, and a laboured respiration. When the system evinces a great and increasing weakness, when the limbs are œdematous, and the secretions more than usually restricted, there is good reason for supposing that the patient labours under peritoneal dropsy; while an unequal swelling of the abdomen, and the want of excessive debility, coupled with other circumstances of a similar character, leads us to pronounce the dropsy as encysted.

Treatment.—Where this variety of dropsy is completely established, little can be attempted with a reasonable prospect of success except the evacuation of the fluid by puncture of the cavity containing it. When the effusion exists in an encysted form, such an operation is frequently impracticable, as the fluid may be lodged in an indefinite number of

vesicles, which it is impossible to open. Peritoneal dropsy, on the contrary, admits of ready relief, and the sooner it is afforded the better.

The patient being seated in a high chair, a long cloth or towel should be passed round the upper part of the abdomen, and fixed securely behind by an assistant; this presses the fluid downwards, and at the same time gives support to the diaphragm, preventing its sudden descent, which would otherwise be very apt to produce syncope. The operator, seated in front on a low chair, takes the common straight abdominal trochar, previously smeared with oil, in his right hand, and holding the handle firm in the palm, he places on the canula his index finger, which not only prevents the trochar entering too far, but also serves as a guide to the instrument. In this manner, about an inch and a half below the umbilicus in the linea alba, it is to be steadily thrust through the integuments and other abdominal parietics, giving it a slight rotatory motion, as it is pushed forwards. Its entrance into the abdomen is rendered evident by the cessation of resistance. By making the puncture at this part, the danger of wounding the epigastric artery is avoided, unless it deviates considerably from its natural course.

The operator, then, with the thumb and index finger of the left hand, gradually pushes forward the canula, while, with the same fingers of the right, he withdraws the stilet. The fluid is to be received in a vessel of sufficient size to contain the whole; the towel or cloth which encircles the abdomen being proportionally tightened as it flows away. Should the orifice of the canula be stopped by lymph or omentum, it must be removed by introducing a blunt probe or director along the tube. The water being evacuated, the canula is to be taken between the index and middle fingers and the thumb of the right hand, and withdrawn slowly, while, with the same fingers of the left, pressure is made on the borders of the wound. A pad of lint should be placed on the puncture, a broad flannel roller applied round the abdomen to give the necessary support, and the patient returned to bed.

Some of the French surgeons, in puncturing the abdomen, employ a curved troacher similar to that used in England for puncturing the bladder by the rectum. This they plunge through the abdominal parietes at the middle point between the umbilicus, and the anterior and superior spinous process of the ilium; the patient lying on the edge of the bed, on the side on which the puncture is made. They choose the right side, as they say the large intestines are more floating at that part on the left, and therefore are in some danger of being wounded.

From one successful operation, we may be encouraged to a second or third, should circumstances demand its repetition, and where we have a sound constitution to deal with, and can place the patient beyond the operation of adverse causes, the probability is, that with the assistance

of medicines, we shall eventually overcome the dropsical tendency. After tapping, the support of a broad belt drawn tight around the abdomen is necessary, in order to support the abdominal muscles, as well as to prevent a re-accumulation; in a few instances indeed, it is recorded that this application alone has excited the absorbents into rapid action, and carried off the water without operation.

The medical treatment may correspond in every respect recommended in cellular dropsy, and be adopted throughout the whole process of cure. The thirst may also be allayed by sub-acid drinks in moderate quantities, and the kidneys yet further stimulated by the alliaceous tribe of plants, added to an ordinary light and nourishing diet.

HYDROPS THORACIS, *Hydrothorax*, or *Dropsy in the Chest*, has received various names, according to the exact spot occupied by the effusion, as hydrops mediastini, pleuræ, pericardii, &c. ; but the above is sufficiently explicit to notice the character of the disease. It is often connected with organic disease of the heart, and likewise dependent upon the causes of dropsy in general, acting more immediately upon the economy of the thorax, and inducing disease in the contents of that cavity. There appears to be a considerable analogy between hydrothorax and acute pleurisy, albuminous filaments being discovered in the serum of both, and this idea only confirms the observation, that however wide the difference may be between dropsy and inflammation in general, there are yet some minor shades of resemblance that somewhat generalizes the pathology of both.

Laennec has described a symptomatic hydrothorax accompanying many acute and chronic diseases, and usually denoting a fatal termination, such as fever, diseases of the heart, tubercles of the lungs, cancer, &c.

Where the disease is not strictly symptomatic, its approach is very gradual; one of the first symptoms is a difficulty of breathing, particularly on exertion, and this is soon succeeded by a troublesome dry cough, with œdema of the ankles towards night; these symptoms are at length aggravated to a distressing degree; the patient can obtain no rest but in an erect position, and the dyspnœa amounts in some cases to a danger of suffocation: these symptoms assume a spasmodic tendency, during which the pulse is weak and irregular, and the face alternately livid and pale: the paroxysm past, a drowsiness and partial insensibility succeed, from which the recovery is slow.

If the effusion be confined to one side, that side will become more rounded, and the intercostal spaces augment in size as the water accumulates, and the œdema of the extremities is confined to the same side. If we examine the chest with the stethoscope, the respiratory murmur

is not distinguishable, except at the roots of the lungs, and the peculiar sound, termed egophonia,* is sometimes very distinct.

This disease is only common in advanced life, and unless one of the spasms, which we have described, is sufficiently severe to terminate existence, its duration will entirely depend upon the strength of the patient to endure repeated attack, and hence, may last for a considerable number of years.

The general treatment is analagous to that required in cellular dropsy, to which, however, blisters may appropriately be added, as tending to act more directly upon the seat of disease. The employment of opium combined with squill or ipecacuanha, and where the bowels are confined, with two or three grains of calomel, has frequently arrested an approaching spasm, and procured the rest that is so anxiously desired in this disease.

In some instances venesection may likewise be advantageous, especially when the heart evidently labours under strong symptoms of congestion.

The use of setons and caustics applied to the arms or legs have also proved serviceable in the hands of some practitioners, and Baglivi even sanctioned the employment of the actual cautery.

The external evacuation of the water by tapping is a practice of very ancient date, being alluded to even by Hippocrates, and it is continued under some circumstances to the present time. In a number of instances, however, this treatment is merely palliative, the fluid rapidly re-accumulating after its evacuation, and should the effusion be lodged in the pericardium, the duplicature of the mediastinum, or the cellular texture of the lungs, no operation will answer for its outlet. The fluid may also be contained in a cyst, or become so viscid as not to flow through any opening. Where after an attentive examination of the symptoms, the operation is resolved upon, it may be thus performed. Place the patient in the half-erect position, and make an incision upon the seventh rib, by taking up a fold of integuments and cutting in the direction of the bone for two inches. Dissect the integument upwards from the rib, and intercostal muscles. The left index finger may then be introduced, if necessary, to feel the superior border of the rib, and the intercostal muscles divided close upon it, to the extent of half an inch, and a small opening made in the pleura costalis; taking care that the point of the knife does but just enter the chest. The flap is then brought down, the wound closed, and a director carefully passed through it so as to evacuate the fluid without allowing the admission of air into the cavity of the pleura. This is afterwards avoided by a compress on the valvular flap, which, if skilfully applied, will serve to prevent the

* Vide Auscultation.

occurrence of emphysema in those cases in which the lung has been opened by the bursting of an abscess into the pleura ; and by the above mode of operating the intercostal artery, running along the lower margin of the sixth rib, cannot be endangered.

If there be much fluid in the thorax, a part only should be evacuated, and then the compress placed over the wound till the next day, when it may be removed, and the remainder let out ; by this gradual evacuation, the lungs will return by degrees to their original state, and thus the pressure of air in the chest will be the more surely prevented.

When there is fluid collected in both pleuræ, an operation on each side will be required, which must be performed at distant periods, or the patient may be suffocated by the admission of air into both sides of the chest at the same time.

HYDROPS CAPITIS, or *Water in the Head.*—*Chronic Hydrocephalus.*—Much confusion has arisen in the classification of this disease with that which depends solely upon inflammation of the brain, whereby effusion is produced, and to which the term of acute hydrocephalus is applied. Indeed, so generally have the maladies been included within one description, that it were unwise, in a work of this character, totally to separate them ; but to avoid a continuance of error, the first disease, or the pure hydrops capitis, will be considered, and then the disease dependent on inflammation, and known as acute hydrocephalus.

Water in the head, is a disease common to children, the cases recorded of its attacking adult age being very rare ; like dropsy of any other organ, it is usually a disease of debility, and may proceed either from a relaxed condition of the secretions of the brain, a torpitude of its absorbents, or from both combined. It is, perhaps, impossible to detect the causes of these circumstances, although in some families there appears a natural predisposition thereto, as several children are attacked in succession, whilst in other instances it is evidently dependent on a scrophulous diathesis, an opinion which is confirmed by Sir A. Cooper in his surgical lectures.

The seat of the disease varies, occurring between the cranium and dura mater, between the latter or the other membranes and the brain itself, or in the ventricles or convolutions of the organ. This variety has led to the employment of the terms, external or internal dropsy of the brain, and Van Swieten has even asserted that an accumulation might take place in the integuments of the head, thus conferring the distinctive character of cellular dropsy, although occasioning the symptoms of chronic hydrocephalus, from the pressure of the superincumbent fluid. This, although a very rare circumstance, may be observed, as well as an effusion in the other parts we have named, and where as is not unfrequently the case, there is some deficiency of structure or

substance, the fluid may easily spread to a variety of situations, simply from a want of resistance to its progress.

This form of the dropsy may commence in the fœtus, and render the head so large as to oppose a considerable obstacle to delivery : in other cases it may only appear till some months, or even years after birth.

The whole head generally enlarges, and with a separation of the sutures ; but in a few instances the disease commences in the form of a tumour, which gradually enlargens and thickens, until the sutures giving way, it is lost in the general swelling occasioned.

The pathological appearances are best explained in the language of Dr. Baillie, premising that it corresponds with that description of the French writers given to that peculiar molescence of the substance of the brain called *ramollissement de cerveau*. "When the cranium is very much enlarged in hydrocephalus, the brain is thinned by absorption into a pulpy bag, and the corpus callosum is burst, so that the water deposited in the ventricles comes in contact with the dura-mater at the upper part of the cranium ; and in this way an hydrocephalus, originally internal, becomes in part external.

When the disease is limited to a weak condition of the excrements of the brain, it is in a great measure remediable, but where on the contrary no impression can be made on the organ, the system at large soon participates in the disturbances of its functions, the limbs become emaciated and death occurs at an uncertain period, sometimes rapidly ensuing, and in other melancholy instances being deferred for many years, the wretched sufferer remaining a burthen to himself, and a miserable spectacle to others. The quantity of fluid discovered after death, is sometimes surprisingly great : twelve, fifteen, and even twenty-four pints have been procured, and this fluid has the property of not coagulating by heat. Occasionally the water has been found lodged in a cyst, and the cerebrum itself has even formed a sac for it.

Morgagni asserts that it is more common in boys than in girls, but the records of more modern experience fail in confirming his observations.

Symptoms.—Three distinct stages are usually observed in this disease. The first commences with languor, inactivity, loss of appetite, nausea, vomiting, thirst, flushing of the face, and other symptoms of pyrexia : intolerance of light, redness of the eyes, acute pain in the head, at intervals, so severe as to cause the child to utter the most piercing shrieks ; costiveness, with an exacerbation of symptoms in the evening. Strabismus, dilatation of the pupil and vomiting soon succeed, with an increase of all the other symptoms, when at length the pain and fever abate, and coma supervenes, which is called the second stage. The strabismus and expanded state of the pupil rather increases until the retina becomes insensible, the pulse being slow and intermitting. At length the third

stage appears, marked by an increase of the pulse, and a recurrence of the febrile symptoms, together with stertorous breathing, involuntary evacuations, in which the sufferer expires in convulsions. The disease does not always run its course in this regular way, but often comes on suddenly and with such violence as to destroy the child in a few days ; but in the generality of cases, it runs on for two or three weeks.

The *treatment* of this affection must be attempted with the same design as in other dropsies, an evacuation, either external or internal, of the effused fluid, and giving a tone to the debilitated organs. The employment of drastic purges cannot be resorted to, on account of the tender age of the patient, and diaphoretics and diuretics have in general failed in producing their desired effect. Calomel in small doses, combined with a carminative, is perhaps better calculated for restoring a healthy action to the depraved organs than any other medicines, especially when inflammatory symptoms have not prevailed. When much excitement is present, general and topical bleeding may be safely recommended, either opening the jugular vein, or applying leeches to the temporal artery ; but such practice must also be undertaken with the greatest caution, remembering how frequently debility is the principal cause of the disease.

Whenever the disease is seated near the surface, local stimulants may be employed with advantage, of which the most advisable is a blister, afterwards kept open with savin ointment : the absorbents are thus excited to a greater degree of action, and sometimes effect a total removal of the accumulation. The water has likewise been evacuated by a lancet or couching needle, taking the precaution to close the orifice after a few ounces have been discharged, as the brain will not bear the sudden loss of the pressure to which it has been accustomed. A plan was tried in England some years ago, and with perfect success, to promote the absorption of the water by pressure : to effect this purpose, the head was closely compressed by straps of adhesive plaster, increasing their tightness upon every application : in the course of a few weeks, during which no increase of symptoms were observed, the head became decidedly less, and by persevering in the treatment for six months, the complaint was eradicated, and the child, a boy about three years of age, restored to perfect health. It will, however, be recollected that the parts in chronic hydrocephalus are already injured by pressure, and therefore, that such practice is scarcely worthy of imitation so long as the fluid is retained : but advantage may be taken of the recommendation when the fluid is discharged, with a view to prevent its re-accumulation.

Acute Hydrocephalus, or that disease which is always accompanied with effusion into the ventricles of the brain, may be considered in the

language of Dr. Abercrombie, "as one of the terminations of inflammatory action within the head," the complaint commencing in, and being ordinarily confined to the posterior part of the brain, the blood vessels affected, being minute branches of the basilar artery.

This disease is also nearly peculiar to the age of childhood; the first symptoms are usually those of great irregularity of the bowels, a degree of listlessness and impatience, a heaviness of the head which the patient seeks to relieve by reposing the organ on the hands; an irregular and uncertain fever, and sometimes a violent and deep seated pain accompanied by nausea or sickness.

The effect of the disease is soon visible in the general dejection, in the sunken eye and the pale cheek, and by the gait of the little sufferer becoming unsteady; the pulse is quickened and uncertain, the sleep disturbed, and interrupted by screams, and there is the occasional occurrence of strabismus. An increase of fever takes place in the evening in the early stage of the disease, but in its advancement, the pyretic symptoms appear at short intervals, rapidly exhausting the strength. At length, the bowels become sympathetically affected, the stimulus of light is painful, stupor supervenes, and convulsions announce the approach of death.

In the treatment of this disease, considerable stress has been laid upon the free withdrawal of blood, by means of leeches or the cupping glass, or in some cases by opening the temporal artery; the head may likewise be shaven and covered with napkins dipped in ice-cold-water, renewed every half hour.

The bowels should be frequently emptied by doses of calomel or calomel and jalap, the skin be excited to a gentle diaphoresis, and the diet confined to light and nourishing articles of food.

The use of mercury as a ptyalism has been much extolled by Dr. Percival, and its union with opium by Dr. Mills, in an excellent article on hydrocephalus in the Transactions of the King and Queen's College of Physicians in Ireland: he has also employed nauseating doses of tartar emetic, with good effect, at the same time applying the tartarized antimonial ointment to the head.

HYDROPS SPINÆ.—*Hydro-rachitis or Dropsy of the Spine.*—See *Spina Bifida*.

HYDROPS UTERI.—*Dropsy of the Womb*, and **HYDROPS OVARII**.—*Dropsy of the Ovary.*—See *Uterus*.

HYDROPS SCROTI.—*Dropsy of the Scrotum.*—See *Hydrocele*, in *Diseases of the Testicles*.

The principal works on dropsy in its various forms are the following: Monroe on Dropsy; Abernethy in the Med. Chir. Trans.; Blackall on Dropsies; Rush's Medical Enquiries and Observations, Percival's

Works ; Maclean on Hydrothorax ; Prout on Diseases of the Renal Organs ; Bright's Reports of Medical Cases ; Laennec on Diseases of the Chest ; Abercrombie's Pathology in Diseases of the Brain : Dictionnaire de Medicine, t. 2 ; Cheyne's Essays on Hydrocephalus ; Corvisart on Organic Diseases of the Heart, and many of the medical periodicals.

HYPOCHONDRIASIS.—This term is derived from hypochondria, to which region the disease was formerly supposed to be confined. Dr. Cullen has admirably described the state of mind, peculiar to this disease, in the following terms : "A languor, listlessness, or want of resolution and activity, with respect to all undertakings ; a disposition to seriousness, sadness and timidity, as to all future events, and apprehension of the worst or most unhappy state of them ; and, therefore, often upon slight grounds, and apprehension of great evil. Such persons are particularly attentive to the state of their own health, to the smallest change of feeling in their bodies ; and from any unusual sensation, perhaps of the slightest kind, they apprehend great danger, and even death itself. In respect to these feelings and fears, there is commonly the most obstinate belief and persuasion." An individual thus affected, seldom lives long ; too often in a moment of extreme misery, life is terminated by suicide, and even where existence is prolonged, it is too constantly saddened to be desirable, either to the sufferer or his surrounding friends.

The common symptoms as effecting the general system, are, a flatulency in the stomach and bowels ; costiveness, a frequent discharge of pale urine, spasmodic pains in the head and other parts of the body, giddiness, dimness of visions, palpitations, general restlessness, and an inability of engaging in anything demanding exertion.

There is often a strong tendency to insanity in individuals thus affected, when the type assumed is one of extreme lowness and melancholy, from which it is most difficult to arouse the sufferer. The proximate cause of the malady in a system predisposed to it, may be either mental or bodily, arising in the former instance from protracted study, or from domestic affliction, and in the latter from a depraved habit, induced by intemperance or indigestion. It may likewise ensue from the sudden cessation of an accustomed discharge, and in some instances, from the displacement of some part of the colon.

The *treatment* must be adapted to the removal of the cause of the disease, so far as it can be understood ; for this purpose the condition of the stomach and bowels requires the closest attention, relieving all the symptoms of indigestion by a careful use of cathartics, not too suddenly stimulating the organs already greatly debilitated, and so regulating the diet, as to insure their regular action in future. A

removal from scenes capable of recalling unpleasant remembrances, from a confined habitation to the pure air of the country; the presence of friends, and the exertion of a high moral courage, are all necessary in relieving the mental weakness that may have induced the disease, and which, if allowed to continue, will assuredly terminate in a premature death, or a condition of hopeless lunacy.

HYPOPYUM—(from *υπο*, under, and *πυον*, pus.) On account of pus being secreted under the cornea.—See *Eye*, diseases of.

HYSSOP—*Hyssopus*—An herb of the class didynamia, and order gymnospermia, the leaves of which are occasionally employed as a stimulant and expectorant in humoral asthma, and chronic catarrh, in doses of from $\mathfrak{D}\text{i}$ to $\mathfrak{Z}\text{i}$ twice or thrice a day in substance or infusion.

It has an aromatic odour, with a sharp and pungent taste, owing to an essential oil, on which its virtues depend.

HYSTERIA—from *υστέρα*, the womb, from a disturbed state of which the disease was supposed to be produced. It comes on in paroxysms, sometimes preceded by dejection of spirits, anxiety, effusion of tears, and palpitations; frequently there is a pain in the left side, at the flexure of the colon, with a sense of distention advancing upwards to the stomach and thence to the throat, giving the sensation of a ball lodged there, whence the term *globus hystericus*: the patient now appears threatened with suffocation, is faint, and affected with stupor and insensibility, while the body and limbs are violently agitated, the hands clenched, with alternate fits of crying, laughing, and screaming, incoherent utterance, frothing at the mouth, and delirium. The spasm at length abates, a quantity of wind is evacuated upwards, and after frequent sobbing and sighing, the patient recovers with a sense of pain in the head, and soreness over her body. In some cases, there are no convulsive motions, but the patient lies without sense or motion. Hiccough is a frequent symptom. Hysteria is peculiar to the female sex, particularly the unmarried, occurs from the age of puberty to thirty-five years, and is more especially troublesome at the period of menstruation. In some few instances, delicate persons of the male sex have been liable to an attack of this disease.

Causes.—Irritability of the nervous system, a sedentary life, anxiety, excessive evacuations, suppression of menses, lochia, or other usual discharges; proneness to venery, flatulent and acescent regimen, constitutional debility, irritation or sympathy, turgescence of the uterine system. It may be distinguished from hypochondriasis, by its coming on in paroxysms; from common syncope, by presence of the pulse and unaltered state of the countenance; from apoplexy, by the absence of stertor; from epilepsy, by the flow of limpid urine, the *globus hystericus*, laughing,

crying, &c. The disease is not immediately dangerous, but may terminate in epilepsy or mania.

In the treatment of this disease, the first indication is to allay the spasmodic symptoms by bleeding, especially if the patient be young and plethoric, and the case recent; and by the administration of stimuli, both to the stomach and nostrils, of which the fœtid spirit of ammonia may perhaps be preferred. The feet should be bathed in warm water, or in violent attacks, cold water may be dashed over the extremities, and the whole class of anti-spasmodics called into requisition, as they can be most readily procured. The second indication is to strengthen the system, and destroy the tendency to a second attack, and this is best accomplished by clearing the primæ viæ, and the subsequent use of tonics and chalybeates, in which cinchona and the preparations of iron may have a share. Cold bathing, and a removal to the country, when a former residence has been in a close situation, light and nourishing diet, may all be regarded as useful auxiliaries; where much irritation is present in the system, the employment of opium in small and repeated doses is demanded, taking care at the same time to keep the bowels regular by the occasional use of a cathartic, the compound aloetic pill, answering for such a purpose. The change effected in the uterine system, by marriage, has frequently effected a cure of this disease, when every general and local remedy had been employed in vain.

The reader may consult, with advantage, on this subject, Hamilton "on Purgatives;" Wilson "on Hysteria;" and the Medical and Surgical Observations of Abernethy.

ICELAND MOSS.—*Lichen Islandicus*, or *Iceland Liverwort*, of the class cryptogamia, and order algæ; a perennial. This moss was introduced to the profession by Linnæus, and as a nutritious demulcent, it is entitled to considerable regard. From containing a bitter principle, it likewise possesses tonic qualities which still further recommend it in cases of debility. It is used in the form of decoction, which, as it cools, gelatinizes, and of which very liberal doses may be given. From the experiments of Proust, it appears that one hundredth parts of this moss contains sixty-four parts of substance bearing some resemblance to animal gluten, thirty-three of a matter soluble in hot water, and resembling starch, and three parts of a bitter principle. It is necessary to add that when its demulcent properties are alone required, the bitter quality is readily extracted by macerating it in a weak alkaline ley.

ICTERUS—from *ικτερος*, from its likeness to the golden thrush or pheasant, with which bird this disease was supposed to be connected; Pliny relating, that if a person affected looked at the bird, it died, while he recovered.—*Jaundice*, which see,

IDIOSYNCRASY—(from *ιδιος*, peculiar, *συν*, with, and *κρασις*, a temperament.)—A singularity of system which refuses ordinary sympathy with the general taste and habits. Thus, in some constitutions, medicines exercise a precisely contrary effect to that usually produced; in others, the skin is violently irritated by substances that ordinarily are inert. There are instances again where wholesome and even delicious food disgusts the stomach, whilst a craving exists for improper and nauseous aliments. In disease, this condition is occasionally very strikingly marked, either by an extraordinary susceptibility to attack, or an obstinate resistance on the part of the system to the reception of the most contagious malady. Idiosyncrasy extends nearly to all the senses; the eye, the ear, the touch, and the smell in common with the taste, being gratified by singular and usually unpleasant offerings, while they are annoyed by the common objects presented to their acceptance.

ILEUS—*ιλεος*.—*Iliac Passion*.—A peculiar colic, sometimes considered nervous, the seat of which is the ileum.—See *Colic*.

IMPERFORATE VAGINA.—It occasionally happens that female infants are born with this imperfection, which either exists as a closure of the vagina, or a perfect closure of the hymen. The evil may not be discovered until the time the menses should make their appearance, when it is suspected, in consequence of the peculiar symptoms that are developed. A loss of appetite, nausea, vomiting, enlargement of the mammæ and abdomen, and spasms set in, which if not relieved, rapidly terminate the existence of the sufferer.

Where the malformation consists in the closure of the orifice of the vagina, a cure is readily effected by a crucial incision, and keeping the edges asunder, until the opening is sufficiently formed; but when the sides of the vagina are adherent, the treatment is much more hazardous and doubtful; an operation is attended with the danger of wounding the rectum and bladder, and there are melancholy instances recorded of such an event resulting. If, however, the operation be determined upon as the only means of affording to the system the exercise of one of its most important functions, one oblique incision only, as recommended by De Haen, should be made in the direction of the vagina, separating the sides afterwards with pledgets to prevent their closure; this may afterwards be gradually enlarged, either by a second incision, or by means of careful dilation.

INCONTINENCE OF URINE—See *Urinary Organs*, diseases of.

IMPETIGO—(from *impeto*, to infest,) A disease of the skin.—See *Cutaneous diseases*.

INFLAMMATION,^s (from *inflammo*, to burn,) is characterized by redness heat, pain, and swelling, upon its approach to the surface of

the body, and is usually the accompaniment to the vast majority of diseases that attack the system.

The redness arises from the distension of the minute vessels, that in a state of health are merely channels of serum, from the entrance of red particles into their trunks, the degree of colour being dependent upon the quantity of venous blood in the distended vessels. The pain is occasioned by a pressure of the surrounding parts on the nervous filaments. The heat by the increased influx of the blood into the inflamed part; and the swelling from the distension of the inflamed vessels, and the effusion of serum into the contiguous cellular substance. There are a great variety of causes leading to inflammation; they may be mechanical, arising from pressure, friction, blows, or wounds; may proceed from the action of caustic acids and alkalies; from the bite of poisonous animals; from the presence of extravasated fluids in the cavities of the body; and from the effects of heat and cold. The causes may likewise be indirect, such as improper aliment taken into the stomach, producing a peculiar and specific cutaneous inflammation; those poisons that act through the medium of the stomach upon the circulatory system, without injuring the mucous coat of the viscus; morbid animal poison, capable of being communicated, such as the syphilitic discharge, small pox matter, itch, the miasm arising from a body infected with the plague, scarlet fever, and measles; cases of hospital gangrene, and in fact all inflammatory diseases produced by effluvia.

Inflammation is divided into two species; phlegmonous and erysipelatous; the first known by its bright red colour, tension, heat, a circumscribed throbbing, and a painful tumefaction of the part tending to suppuration; the second, distinguished by the characters described under the head of erysipelas, in the article on cutaneous diseases. Inflammation is also, either acute and chronic, local or general, simple or complicated with other diseases, such as the venereal, small pox, scrofula, &c.

The terminations of inflammation are four in number. 1st, *Resolution*, the most frequent and most favourable. It consists in a general abatement of pain, heat, and other symptoms, without any formation of pus, or injury of structure. 2d, *Suppuration*, which is the next most frequent and favourable, and consists of a formation of pus. 3d, *Ulceration*, or a removal or destruction of the parts by the process of absorption. 4th, *Mortification*, which is the least favourable, and least frequent; it consists in the death of the part. Schirrhus, too, or a hardness of the part, having a liability to that disease, is regarded by some as a termination of inflammation.

Parts, just recovered from inflammation, are in a state of atony, and liable to relapse; chronic inflammation is also liable to take its place.

It is, therefore, proper, when the acute form has abated, to apply to the part, stimulants and astringents to restore the tone of the vessels, and resolvents to promote the absorption of the effused lymph. When the inflammation terminates in suppuration or mortification, and continues in that state some time, exciting much irritation in the system, and inducing much debility, hectic fever arises, which is to be considered as the remote consequence of the injury. See *Fevers*. But inflammation to a moderate degree, as in cases of wounds, &c., is a healthy process, for it throws out an adhesive fluid, which agglutinates the parts together and repairs the injury. This is called *adhesive inflammation*, and should not be molested, unless existing in a violent degree.—See *wounds*.

Treatment.—The indications to be observed are, first, to remove the causes which continue to operate in keeping up the morbid condition; second, to reduce the action of the vascular system, by general bleeding from a large orifice, so as to produce fainting, and, if performed in a warm bath, the effect will be greater; by emetics, clysters, and purgatives of mild neutral salts, avoiding drastics, as they produce too much irritation in the system; by antimonial in nauseating doses, and other diaphoretics assisted by the pediluvium, and the warm bath; by sedatives internally, as nitre, digitalis, colchicum; by rigidly adopting the antiphlogistic regimen, enjoining rest, quietude, &c.; third, to diminish the action and sensibility of the part inflamed, by topical bleeding with leeches, cupping glasses, and scarifications; by the application of cold sedative lotions, as vinegar and water, or the diluted liquor plumbi acetatis. There are numerous cases likewise, in which the greatest relief is afforded by the use of warm fomentations, and poultices, particularly in some varieties of ophthalmia, and hernia humoralis.

The precise symptoms of inflammation, the usual causes of its appearance, and the necessary treatment of particular organs labouring under it, may be treated of with more propriety under the several heads to which they refer.

INFLAMMATION OF THE BRAIN.—This may occur in the dura-mater, the pia-mater, or the arachnoid membranes, in the substance of the hemispheres, or the deep seated central parts of the brain. It is very rare that we can determine with any degree of exactness, in what particular part an inflammation may exist within the cranium, the symptoms rather depending upon the degree of its activity.

Phrenitis, or inflammatory disease within the head, is characterized by fever, watchfulness, acute head-ache, impatience of light, suffusion of the eyes, and maniacal delirium. It is rarely an idiopathic disease, except when induced by the abuse of spirituous liquors, or by exposure to the intense heat of the sun.

As a symptomatic affection, it is met with occasionally in fever, and in

mania, and a condition somewhat resembling it occasionally succeeds to injuries of the head. When fatal, it is generally by a rapid sinking of the vital powers supervening upon the high excitement, without producing much disorganization of the parts which appear to have been the seat of the disease.

In another form of this disease, and which may more properly be referred to an inflammation of the membranes of the brain, the first symptom is a sudden attack of convulsion, which is followed by coma proving fatal within a few days ; should the first convulsion be recovered from, it may return in a short time, the patient suffering from head-ache and stupor in the interval, and this may be continued until existence is destroyed in the struggle.

A third form of the disease is common to children, and denotes deep seated inflammation of the organ. It is usually preceded for a day or two by languor and peevishness, and the sufferer soon complains of an acute pain in some part of the head, accompanied by an impatience of light, and repeated flushings of the face. Sometimes a sense of nausea, or even vomiting, prevails ; the pain extends from the head to the neck and arms ; the pupil is contracted, the eyes suffused and acutely sensible, and the tongue white and moist. The bowels are generally costive, although in some instances a diarrhœa accompanies the disease from first to last. In a few days, delirium sets in, sometimes of an incoherent and rambling character, and at others inclined to violence ; this state soon subsides into coma, occasionally attended with paralysis of one or more of the limbs, or with convulsive movements.

In young children who cannot describe their feelings, this form of the disease is characterized by fever, restlessness, screaming, and often by vomiting ; these symptoms are succeeded by squinting and stupor, the pulse falling as the state of coma approaches. This decline in the pulse, while the child continues in a state of great oppression, approaching to insensibility, is often the first circumstance to point out the alarming nature of the disease.

There are other varieties of cerebral inflammation, but the above are sufficient to display the leading characters of a disease, which is too generally attended with a fatal result.

Treatment.—The indications for the cure of inflammation in general, are applicable to the present case, such as early general and local bleedings, opening the jugular vein or temporal artery, the employment of leeches to the scalp, or cupping glasses to the back of the neck. The head should be shaved, and continually wetted with cold lotions, composed of acetate of lead, vinegar, or the muriate of ammonia. Blisters may be applied to the head, neck, and legs : and the warm bath or the pediluvium likewise called into requisition. The bowels should be freely opened, and kept in a relaxed state, by active purgatives, of which

calomel is probably the most serviceable, either singly, or in cases of children, combined with rhubarb or antimonials.

The use of opium is rarely admissible, and where a sedative is demanded, hyoscyamus may, with propriety, be preferred. The symptomatic disease requires but little alteration in the treatment, the primary affection occupying the attention of the physician. In all cases, however, the strictest quiet is necessary, and the patient should be kept in a darkened, but well ventilated apartment.

PLEURITIS, or pleurisy, is divided into the acute and chronic species, which, though not very dissimilar in their pathological characters, yet are sufficiently so to merit separate descriptions.

Acute Pleurisy.—This inflammatory affection, like that of all serous membranes, has for its anatomical character, redness of the affected membrane. This redness is formed into points which are thinly scattered over the surface of the membrane, leaving between them, intervals, in which we can still distinguish the natural colour of the pleura. The blood vessels which ramify on the surface of the affected membrane, are found redder and more apparent than in the natural state. Inflammation of the pleura is generally accompanied by an effusion on its internal surface, which consists of two different materials; the one semi-concrete, known under the name of *false membrane*; the other, very liquid, and called *serosity*, or sero-purulent effusion. The false membranes are formed by a yellowish white, slightly transparent matter, the consistence of which is in some cases hardly greater than that of pus, but generally equal to that of the white of an egg boiled, or the buffy coat of blood, to which last it bears a strong resemblance. This matter extended like a net work over the inflamed part, when the pleurisy is general, follows all the folds of the pleura, as well pulmonary as costal, forming within it a complete double lining. In cases where the inflammation is confined to the pulmonary or costal pleura, the false membrane only covers the affected part.

Sometimes, and more particularly when the serous effusion is abundant, the false membranes are either wholly or in part detached from the pleura, and float in the effused serum. It even happens that we find in the liquid, masses of concrete albuminous exudation of considerable size, whose globular form would seem to show that they had never been adherent to the pleura: this, however, appears difficult of conception. It is probable that these masses were formed in the angular folds which the cavity of the pleura presents towards the root of the lung, and the attachment of the diaphragm; and, by subsequent floating in the effused liquid, become rounded by their mutual attrition. The serous effusion which generally accompanies the formation of false membrane, is usually of a light yellow or lemon colour; its transparency

is injured by small portions of pseudo-membranous exudation, and in this state it has a strong resemblance to whey. In other cases the serosity is of a deep yellow colour, and is sometimes even completely sanguinolent. In slight and partial inflammations of the lung, the pleura pulmonalis is sometimes found corresponding with the affected part, inflamed and covered to a small extent by a false membrane, which, according to the time of its formation, is yellow, opaque, and adhering slightly to the contiguous membrane, or firm, semi-transparent, reddened by a great number of minute vessels, and already divided into membranous layers. In some cases no serous effusion can be found, and in these instances it sometimes happens, that neither the stethoscope nor percussion gives any sign of effusion during life. The same phenomena frequently occur in phthisical patients.

The false membranes gradually tend to convert themselves into a true serous tissue, analogous to that of the pleura. In a short time the pseudo-membranous layers become thinner and less opaque; blood vessels are seen to ramify through their substance; they become completely transparent, and as thin as plates of cellular tissue; and their vessels are quite similar to those which ramify on the internal surface of the pleura. If the effusion in pleurisy be very considerable, the lung, from compression, becomes flabby, and ceases to crepitate; its vessels are without blood; its bronchial tubes, with the exception of the large trunks, are evidently diminished in calibre, but its texture can still be recognised.

It bears no resemblance to the state of sanguineous infiltration which the lung presents in the first stage of pneumonia, and if we blow into the bronchial tubes, the pulmonary tissue is more or less perfectly developed.

Pleurisy may exist in more than one situation; for instance, in the pleura itself, as it lines the ribs, when it is termed true pleurisy; in the mediastinum, and in the diaphragm; the symptoms of all being of the same character, although more or less confined to the spots where the disease prevails.

The *symptoms* are the following:—It commences with chillness or shivering, succeeded by heat and restlessness. The pain or stitch, in true pleurisy, is usually just above the short ribs, and the dyspnœa is characterized by the expirations being less painful than the inspirations. The pulse is hard, strong, and frequent; and though the cough is mostly dry and difficult, there is sometimes a bloody or puriform mucus spit up from the lungs. The patient lies most easily on the affected side or the back, and cannot change his position, without an increase both in the pain and dyspnœa. The diagnosis between this disease and peripneumony, with which it has occasionally been confounded, may generally

be drawn, by observing the want of the flushed countenance so frequent in the latter, by the greater hardness of the pulse, but the less violence of the cough, and by the general absence of expectoration. In peripneumony, also, the pain ranges from one spot to another, but in pleurisy it is confined to one location.

Treatment.—There is scarcely any inflammatory disease so much within the reach of the physician as the one under review. A very considerable quantity of blood should immediately be abstracted from a large orifice, and the impression thus made, repeated by a second venesection, or what is still better, by profuse local bleeding by means of leeching and cupping. After depletion, blisters may be applied with great advantage, and over the spot where the pain is complained of. Purgatives should also be used freely, and well as the tartarized antimony, as a nauseant and relaxant, thereby preventing the withdrawal of an undue portion of blood, and speedily subduing the inflammatory action. The use of opium, and particularly in combination with calomel, as recommended by Dr. R. Hamilton, does not require so much caution as in peripneumony, and is frequently eminently serviceable in calming the prevailing restlessness. When effusion has taken place, its absorption may be promoted by the acetate of potash, digitalis, mercurial inunction, and the repeated use of blisters.

PERICARDITIS may be either acute or chronic. When the pericardium has been inflamed, it presents much the same characters as other serous membranes similarly affected. But the redness, so constantly met with in the acute inflammation of these tissues, is not so distinct in pericarditis. When it does appear, it is in patches, and the membrane has a punctuated appearance, as if covered by little points of blood. Laennec states, that he has seldom observed thickening of the membrane to accompany the punctuated redness; and Bertin, that this alteration is but rarely observed in pericarditis. The organised, and firmly adherent false membrane, may have often led to the idea that the pericardium was thickened.

The albuminous concretion, which is afterwards to become an organized membrane, covers the pericardium either wholly or in part; sometimes it is equal and smooth, in other instances rough and unequal; and has been seen forming a beautiful net work over the heart. Corvisart compares the appearance of the exudation in some instances to the internal surface of the second stomach of a calf. Its consistence is generally firmer than that which occurs on the inflamed pleura, and in course of time it is converted into an organized false membrane, forming adhesions similar to those observed as the consequence of pleuritis. In a few cases, the inflammation is partial, and even a very small part of the membranes may be inflamed. Laennec states the proportion.

between the partial and general affections, to be as one to ten. But this proportion will be diminished, if we reckon as the effect of partial pericarditis, the occurrence of white, opaque, and large patches of a horny consistence, which are frequently observed on the heart. On account of their thickness and strong adhesion, it is difficult to say whether they are situated on, or behind the pericardium. The latter opinion was adopted by Corvisart, and he also thought that they were not the product of inflammation; but both these positions are ably contested by Laennec, in his work on Mediate Auscultation.

In chronic pericarditis, the inflammation is more general, and the membrane is redder than in the acute species. The albuminous exudation is not nearly so frequent, and is softer. The serous effusion is more purulent and in greater quantity. In most cases of pericarditis, but especially the chronic, the substance of the heart is found pale, and sometimes softened, but instances are observed, where the muscular substance of the heart was firmer than natural.

The *symptoms* of pericarditis, are generally great dyspnœa and anxiety, which gradually increases until death; in general there is no positive pain, although the palpitations occasioned are productive of the greatest distress. Andral, however, relates a case in which an acute pain was complained of at the bottom of the sternum, and in the region of the heart, the dyspnœa and anxiety subsiding when it was most violent. There is usually present a short, dry, and incessant cough, aggravating the other symptoms; the respiration is irregular and laboured, the tongue white, and the skin moistened with perspiration, whilst the pulse is frequent and hard, and towards the termination of the case irregular. A peculiar and anxious appearance of the countenance is invariably recognized in this disease, and it is usually accompanied by a paleness or lividity.

The *exciting causes* of pericarditis may be referred to cold, and the metastasis of acute rheumatism; the latter being, perhaps, the most common.

The *treatment* varies little from that demanded in other acute inflammations, and consists of venesection, governed and repeated according to circumstances; cupping or leeching in the affected region, with the subsequent use of blisters, and the free administration of purgatives and antimonials, such as calomel and James's powders combined. In some cases of excessive action, digitalis may be employed, and likewise opium, in combination with ipecacuanha, where restlessness and cough are violent.

We occasionally meet with a case of *chronic pericarditis*, after an acute attack has subsided. It is frequently accompanied by more or less enlargement of the heart, and in the area of its cavities, rather than

in the increase of its parietes, and is sometimes combined with adhesions of the pericardium to that organ. These states are of course the results of the active inflammation that has before existed.

The *symptoms* are not always well marked, and are liable to be mistaken for those of dyspepsia or hysteria; they resemble, although in a faint degree, the phenomena observed in acute inflammation, and are readily exasperated by the slightest mental exertion or bodily fatigue. Dropsy is the common result of the most severe cases. The duration of the disease is various; it sometimes terminates fatally in a few weeks, or is continued throughout a long life.

The *treatment* can scarcely be proposed that bids a rational hope of success in the cure of this disease; but the sufferings of the patient may be materially lessened by a strict attention to the antiphlogistic regimen, and by keeping down the action of the heart by occasional purgatives. A seton may be established and kept open in the neighbourhood of the heart, and of the various remedies proposed in diminishing the general irritability, small doses of digitalis and calomel, combined with extract of cicuta, may be preferred. Where the symptoms are called into activity by any adverse circumstances, a small quantity of blood may with propriety be withdrawn.

BRONCHITIS.—This term is applied to inflammation of the mucous lining of the bronchi or air-passages of the lungs. There are few disorders of more common occurrence; and few, perhaps none, so varied in importance. In its slighter forms it is scarcely deemed an interruption to health; but when severe, it becomes a dangerous and fatal disease. It presents itself under two forms, the *acute* and the *chronic*; the one differing from the other in the greater intensity of the inflammation, and in the more rapid progress of the disease.

Acute Bronchitis.—The commoner cases of acute bronchitis generally succeed to coryza, or inflammatory affection of the mucous membrane lining the nose, and its contiguous cavities, the frontal sinuses. Sometimes the inflammation first attacks the tonsils and fauces, from thence is transferred to the lining of the larynx, and gradually extends downwards to the trachea and bronchi. In other instances the inflammation begins in the bronchi themselves; and this mostly occurs in those whose lungs are susceptible. The first symptom that characterizes bronchitis, is a feeling of roughness of the trachea, which occasions frequent attempts to clear the throat, and is much increased by exertions of the voice, or of the organs of respiration. It soon amounts to such a degree of titillation as to excite cough, which is at first hard and dry. At this time, there is generally more or less hoarseness, with a tight feeling across the chest, which often amounts to a pain, especially on coughing, and occasions considerable uneasiness in breathing. Some

signs of fever are usually felt at this period, such as lassitude, cold shiverings, pain in the limbs, and some acceleration of the pulse.

Such is the ordinary course of the slighter cases of acute bronchitis, for which the nature of their usual cause has obtained the name of "a common cold." But the same disease, differing from these only in the extent of membrane affected, presents much more formidable characters. In such severe cases, rigors and symptoms of general fever usually attend at the onset of the disease. The patient suffers from head-ache, particularly over the eyes, sickness and loss of appetite, lassitude, and great prostration of strength, with occasional pains in the limbs. The tongue is foul, and the urine scanty and high-coloured. The dyspnœa is often urgent from the beginning, particularly in the night; and this symptom, as well as the tightness and pain in the chest, is much aggravated by fits of coughing. The pain in the chest is most frequently referred to the sternum, and is more obtuse than the pain of pleurisy, and is often accompanied with a sense of weight to which the dyspnœa is ascribed. The pulse is hard and quick, but presents considerable variety as to the degree of frequency and fulness. The matter expectorated is usually scanty at first, and afterward becomes copious; it is glairy, frothy, sometimes streaked with blood, and its evacuation affords but little relief to the cough or breathing; it has been compared to the white of an egg in different degrees of dilution, is generally most frothy when moderately viscid and in great abundance; its quantity increases, and there is a general aggravation of all the symptoms in the evening. It is at this time that the fever increases, the dyspnœa most oppressive, and the cough most distressing.

Between the fourth and eighth days the disease declines in favourable cases: the dyspnœa is diminished, and is confined chiefly to the evening, when there is almost always a tendency to exacerbation. The expectoration now becomes pearly and less abundant, and affords relief to the dyspnœa. The symptoms of fever subside, and the disease entirely disappears or passes into the chronic form.

Exciting causes.—The usual cause of bronchitis is cold, particularly when conjoined with moisture, applied locally or generally, as for instance, by wearing damp clothing, or exposure to a cold, moist, variable atmosphere, especially after the body has been heated by exercise, crowded rooms, &c. But it appears that all sudden alterations of temperature from cold to heat, and certain epidemic states of the atmosphere also, are capable of giving rise to bronchitic affections. Irritating gases and vapours may excite inflammation of the bronchial membrane; but it is of the slightest kind and soon passes away, unless the cause be again applied. A much more severe bronchitis accompanies some of the acute eruptive diseases, and frequently causes the chief danger that

attends them. In some cases the eruption fades, or is diminished, to the great increase of the bronchial affection, which is then announced by oppressive and dangerous dyspnœa. The inflammation of gout is sometimes translated in a similar manner in those predisposed to a bronchial inflammation, and the suddenness of the attack, renders these cases the more dangerous.

The prognosis in acute bronchitis must depend on the extent of the disease. When the inflammation is partial, affecting a few bronchi only, as in common cases, and without much dyspnœa or fever, it may terminate in from six days to three or four weeks; and its disposition to pass off is always indicated by the expectoration becoming opaque, and more consistent, and gradually diminishing in quantity. This change is always first observable in the mornings; the evening exacerbation restoring the then glairy character to the sputa, even in cases tending towards convalescence. A relapse is marked by the expectorated matter becoming again transparent and glairy, and this is always accompanied by an aggravation of the cough and other symptoms.

Treatment.—By antiphlogistic diet, and a few simple means calculated to restore the secretions, and if required, to cause revulsion from the inflamed part, a cold may often be checked in a few days, which, if left to itself, may run on for weeks, entailing on some subjects other and worse evils. The most effectual means are as follow: At the first feeling of the cold, let a purgative be given, with two or three grains of ipecacuanha or James's powder. Let a hot pediluvium be used, the patient getting into a warm and well covered bed immediately after, and promoting any disposition to perspiration by a warm draught of thin gruel, barley water, or any other mild diluent. If perspiration comes on and the purgative operates well, the cold is sometimes already cured; and it is only necessary to remain at home, and abstain from animal food and wine the next day to prevent a return.

To loosen the cough and lead the bronchial inflammation to the stage of free secretion, small doses of ipecacuanha or tartarized antimony are often most effectual; and, although called a stimulant expectorant, squills, when combined with these, have always appeared to exert a beneficial effect: ten minims of the tincture with thirty of the vinum ipecacuanhæ, and six or eight of the liquor potassæ, given three or four times a day, seldom fail to facilitate expectoration and relieve the cough.

So long as the phlogistic state continues, with high fever, hard pulse, and great feeling of straitness and oppression in the chest, there can be no doubt of the propriety of bleeding more or less freely, according to the intensity of the symptoms, and the strength of the patient; but it is not prudent as in pleurisy or peripneumony, to bleed to syncope, or to push the measure with an expectation of very marked relief. From

sixteen to twenty-four ounces may be taken at first in severe cases; and the repetition of general blood-letting must depend on the state of the pulse rather than on other symptoms.

When the inflammation is high, calomel, with a grain or two of ipecacuanha, combined with jalap, scammony, or any of the active cathartics, is to be preferred, and followed by repeated doses of a saline aperient, containing a small quantity of tartarized antimony.

Calomel and opium combined, and given in frequently repeated doses, as in other acute inflammations, are likewise sometimes highly beneficial; their use is especially indicated, where, as is not unfrequently the case, the bronchitis is complicated with gastro-hepatic disease. The opium should be in smaller proportion than usual, and is, perhaps, most safely given in the form of Dover's powder.

In the bronchitis of young children, emetics are peculiarly serviceable; for besides the beneficial effect they produce on the inflamed membrane itself, the muscular action of vomiting greatly assists expectoration, which can scarcely be effected at this age. Purgatives, too, are generally of more marked utility than in adults, and, if repeated, may frequently prevent the necessity for general bleeding. Dr. Hastings, however, highly recommends bleeding from the jugular vein, and in imminent cases this is probably the means most to be relied on.

INFLAMMATION OF THE LARYNX.—*Laryngitis*.—See *Cynanche Laryngea*.

INFLAMMATION OF THE TONSILS.—*Tonsillitis*, like other diseases, assumes different forms, according to the character and amount of the exciting cause or causes, sex, age, and constitution of the person.

1. In healthy adult persons, the severer forms of tonsillitis generally terminate by suppuration, the matter is evacuated, the tumefaction subsides, and the parts morbidly engaged soon return to their pristine condition. It is a pathological law that tissues, when once inflamed, are more liable to be again attacked than those which have never been affected; therefore, in accordance with this principle, we find that those persons who have once had tonsillitis are very commonly harrassed with returns of the disease. The consequence of such attacks (particularly when cold, astringent and stimulating gargles have been used, or when scarifications, with a view of reducing the inflammation, and premature punctures and incisions, intended for the evacuation of matter are practised,) is induration and enlargement of the tonsils.

2. In infants of a scrofulous habit, the tonsils sometimes enlarge without any known exciting cause; but this alteration is generally coincident with ramollisement of the bones, tumefaction of the abdomen, and emaciation, or irritation of the bowels, as manifested by griping pains, flatulence, humid tongue, foul breath, and green fœtid, and curdled stools.

3. In young persons of scrofulous character and sanguine temperament, from exposure to wet or cold, the tonsils become affected with sub-acute inflammation ; medical treatment is not generally sought after, the person follows his occupation, a small abscess forms, advances slowly, and after a week or two he feels well, with the exception of a slight stiffness and tenderness of the fauces. Should this attack occur in the winter, others of a similar nature ensue at intervals of a few weeks, and after some time the tonsils are found enlarged.

In the first form of disease, the surface of the tonsil is ragged, its investing mucous membrane destroyed, except near the base, where it is thick and friable, and its structure rocky, homogeneous, and of a reddish brown colour ; it adheres firmly to the surrounding parts, and when fine size injection is forced into the corresponding carotid, they become highly coloured, and the enlarged mass appears to receive more blood than natural. In the second form, the surface of the tonsil is smooth, its mucous membrane is entire and loosely attached to it, its structure spongy and but little vascular, and it is connected, hut very loosely, with the subjacent parts. In the third form, though the surface of the tonsil is irregular, still the irregularities are rounded off, so as to produce more or less of a tuberculated appearance ; its mucous membrane is thickened, and in different points, particularly between the tubercles, we may detect ulcerations and cicatrices, and here, as well as over the site of any contained purulent depots, this envelope adheres firmly ; but in the intermediate spaces, the bond of union is not more firm than natural ; its structure is uneven, being composed partly of fleshy matter, and ætheromatous deposits, some of which are still crude, while others are mature ; finally, it is proved, by injection, to be more vascular than natural. When the tonsils are enlarged, they press on the orifices of the eustachian tubes, and produce deafness, project into the internal fauces and impede deglutition, and by overhanging the rina glottidis, destroy the voice, and so far impair respiration that it becomes sonorous and uneven, particularly during sleep, in consequence of active exercise, or any slight attack of inflammation. It is certainly only under such circumstances that the removal of the tonsils should be attempted, as several cases are recorded of young and scrofulous children, where the tonsils were not only enlarged, but indurated, and without any medical aid they have returned to their pristine state.

A variety of modes have been described for the removal of diseased tonsils, from the time of Celsus, to the present period, by the actual and potential cautery, by ligature, or by excision ; the two first modes are now deservedly reprobated, and the third alone employed in their extirpation.

It is unnecessary to detain the reader by a detail of the different

methods pursued by operators, especially as the plan adopted by Dr. Bushe, the authority from whom we have compiled these remarks, appears to possess every advantage, that can be required. Dr. Bushe has invented a pair of curved scissors, one blade of which is terminated by a vertical bar, and both furnished on the concave side, with two small vertical prongs. By the bar, the tonsil is prevented from receding during the approximation of the blades; and by the prongs, the excised portion is secured and extracted, without any danger of its falling into the œsophagus or larynx. This instrument was found equal to the desired end in operation, except where the tonsil was very large and hard, when there was a difficulty in approximating the blades, and sometimes the tonsils passed outwards, when the pressure was applied. With a view of remedying these defects, Dr. Bushe invented a second instrument, to which he has attached the name tonsiltome, and which combining the advantages of a ring and hook to secure the tonsil, and a concealed knife for removing it, presents every necessary facility in the performance of the operation, whilst the left hand is engaged with the spatula in depressing the tongue and jaw. The operation by these means is much more easily effected than by the use of the bistoury and hook, in the hands of other surgeons.

See the 4th part of volume 2, of the New York Medical Bulletin, edited by Dr. George Bushe.

INFLAMMATION OF THE LUNGS.—*Pneumonia*.—See *Lungs*, diseases of.

INFLAMMATION OF THE STOMACH.—*Gastritis*.

INFLAMMATION OF THE INTESTINES.—*Enteritis*.

INFLAMMATION OF THE PERITONEUM.—*Peritonitis*.

INFLAMMATION OF THE SPLEEN.—*Splenitis*.

INFLAMMATION OF THE LIVER.—*Hepatitis*.—See *Liver*, diseases of.

INFLAMMATION OF THE KIDNEY.—*Nephritis*.

INFLAMMATION OF THE BLADDER.—*Cystitis*.

INFLAMMATION OF THE TESTICLE.—*Orchitis*.—See *Testicle*, diseases of.

INFLAMMATION OF THE EAR.—*Otitis*.—See *Deafness*.

INFLAMMATION OF THE EYE.—*Ophthalmitis*.—See *Eye*, diseases of.

INFLAMMATION OF THE WOMB.—*Hysteritis*.—See *Uterus*, diseases of.

INFLUENZA.—An Italian word signifying influence, from its supposed production by a peculiar influence of the stars.—See *Catarrh*.

INFUSION.—(*Infusum*.)—The preparation of medicine; by immersing articles of a light texture into warm water, and allowing them to remain therein, until their active qualities are parted with.

INOCULATION.—(*Inoculatio.*)—By this term is meant, the transfusion of some specific disease from one person to another, through the medium of a matter possessing the specific quality of the disease. The operation is principally confined to the small and cow pox. To insure the success of the operation it is necessary, 1st, that the matter be pure, unmixed with the matter of phlegmon, blood or other foreign substance; 2d, that the matter be fresh; 3d, that it be properly deposited in the person inoculated. In performing the operation, the cuticle should be gently elevated, and the matter inserted under it, to be conveyed into the system by the absorbents. The matter should be inserted without drawing blood.

INSANITY.—(*Insania.*)—See *Mania*.

INTESTINES, WOUNDS OF.—See *Wounds*.

INTROSUSCEPTION, or *Intussusception*, or *Volvulus*, (from *intus*, within, and *suscipio*, to remove.)—This affection consists in the passing of one portion or fold of intestines into another, either from above downwards, termed *progressive*, or from below upwards, then called *retrograde*. Mr. Langstaff, (see Edinb. Surg. Jour. No. xi.) asserts that children are particularly liable to this affection, though it is not always fatal. The worst cases are when the small intestines are protruded into the cæcum. The ileum, cæcum, and transverse portion of the colon, have been found in the sigmoid flexion of the latter.

The *symptoms* attending this complaint, are those of inflammation of the intestines, and strangulated hernia. Sometimes a tumour can be felt at the part. There is also a difficulty in throwing up injections. The prognosis, when this disease is suspected, must be always unfavourable. Art can do very little in these cases, for adhesions speedily take place between the inverted folds, which renders the separation impossible. In this dilemma nature herself, will sometimes save the patient by causing the invaginated portion to slough off, when it will be discharged per anum, while the adhesions retain together the divided portions of the gut. The old practice of giving quicksilver is justly exploded. Our efforts should entirely be confined to bleeding and other means for averting inflammation.

INVERSION.—Of *Uterus*, and *Anus*.—See those subjects.

IODINE, (from *ιωδης*, a violet colour, so termed from its beautiful appearance.)—A peculiar principle existing in combination with oxygen, in hydriodic acid, which is procured in considerable quantity from kelp or barilla. It was first discovered by Curtois, and has subsequently been made the subject of much ingenious experiment.

The specific gravity of iodine is 4.948: that of its vapour, 8.678, and 100 cubic inches weigh about 270 grains: it has a pungent odour, an

acid taste, and stains the skin of a deep brownish yellow colour, when taken in considerable quantities. It evaporates at the ordinary temperature of the atmosphere, melts at 227° , and is sublimed at 350° , forming a purple vapour. Iodine is soluble in alcohol and ether, but sparingly so in water, and its solutions have an orange brown tint, destroying the vegetable colours. In its general properties, it bears a great analogy to chlorine, and like it, is always attracted to the positive pole of the galvanic battery, when disengaged from its combinations with the metals or other inflammable bodies.

Iodine is medicinally employed, both externally and internally, in the treatment of goitre or bronchocelc, and likewise in scrofulous and tuberculous affections; it is also recommended as an emmenagogue in cases of chlorosis, or obstructed menstruation. The usual form of its exhibition, is that of tincture, made by the addition of two scruples to an ounce of alcohol, at 35° , of which five drops, gradually increased to twenty, may be given twice or three times a day.

The hydriodates of potass and soda are procured by the combination of the salifiable bases with the hydriodic acid, prepared by mixing four parts of iodine, with one of phosphorus, in a glass retort, moistening it, and applying a gentle heat, when the acid is disengaged in a gaseous state, and received in a jar full of common air, which is displaced in consequence of the greater density of the gas; it is then formed by the combination of the iodine with the hydrogen of the water. The hydriodate of potass, in particular, is much used in the preparation of an ointment for the same purposes as iodine, in the proportion of one drachm to an ounce of lard.

The iodate of zinc, the ioduret of sulphur, (extensively employed in the French hospitals, in the treatment of lepra and psoriasis) and the ioduret of mercury, are likewise made use of, to answer the same objects.

IPECACUANHA.—The root of the *Callicocca Ipecacuanha*, a plant of the class pentandria, and order monogynia. There are three varieties of this plant employed in medicine; the ash coloured, or gray root, the brown, and the white, of which the first is usually preferred. The emetic properties are contained in a vegetable principle, discovered by M. M. Majendie and Pelletier, to which the name of *emetine* has been applied, a grain of which excites violent emesis.

Ipecacuanha is unquestionably the most valuable nauseant and emetic in medicine; its operation varies with its dose; from gr: x to 3ss acting as an emetic; and from gr: i to gr: v, as a nauseant and expectorant. In very small doses, and especially when combined with opium, it operates as a diaphoretic, and when united with cathartics, it increases and accelerates their action.

In the dry hard cough, frequently attendant upon pulmonary irritation, in dysentery, and chronic diarrhœa, its virtues are very apparent in doses apportioned to the system and symptoms of the patient; and in hæmorrhage, from the lungs and uterus, it has proved equally serviceable.

The *official preparations*, are the compound powder of ipecacuanha, (pulvis ipecacuanhæ comp.,) or Dover's powder, which see; and the wine of ipecacuanha, (vinum ipecac. ;) dose, as an emetic, from ʒij to ʒss; as a diaphoretic, from twenty to forty drops. This latter preparation is particularly useful in the treatment of the diseases of childhood.

Ipecacuanha is *incompatible* with all vegetable astringents, as infusion of galls, &c., and the vegetable acids, especially the acetic.

IRITIS, (from *Iris*, the name of the membrane.)—Inflammation of the iris.—See *Eye*, diseases of.

IRON.—*Ferrum*.—See *Metals*.

ISCHURIA, (from *ἰσχω*, to restrain, and *ουρον*, the urine.)—A suppression of urine.—See *Urinary Organs*, diseases of.

ISINGLASS, (*Ichthyocolla*, from *ἰχθῦς*, a fish, and *κόλλα*, glue.)—This substance consists almost entirely of gelatine, 100 grains of good isinglass, containing more than 98 of matter soluble in water. It is prepared from the sounds of the eod, and other description of fish, and is employed in medicine as a diet for the sick and convalescent, being exceedingly nutritive and demulcent. An excellent food is prepared with this substance for children troubled with acidity in the primæ viæ.

ISSUE, signifies an ulcer, made designedly by the surgeon to excite a purulent discharge, for the prevention or cure of diseases. There are two modes of making issues, one, with a cutting instrument, the other by means of caustic or blistering plaster. The first is accomplished by taking up a fold of the integuments, and making an incision with a scalpel sufficiently large to admit one or more peas or beans, agreeably to the extent of surface we wish to suppurate; the peas are then to be introduced, confined with adhesive plaster and bandage, when, in a few days suppuration ensues. The peas are then to be withdrawn, the part washed, and fresh peas renewed daily. When a large issue is desirable, the other mode is to be used. This consists in destroying a portion of integument with caustic, (potass) by laying down a piece of adhesive plaster with an aperture cut in it of a proper size, and then rubbing the exposed skin until it becomes black, and afterwards applying a poultice until the part sloughs off. A string of peas or beads is then to be laid on the surface and confined with plaster and bandage. Blistering plaster will answer the purpose of caustic, or a piece of cork, India rubber, or spunk, ignited and applied to the skin for a few minutes. Issues should

be made in parts little exposed to motion, as the space at the insertion of the deltoid muscle, the hollow below the trochanter major, on either side of the spine, &c.—See *Moxa*.

ITCH.—*Psora*.—A very infectious eruptive disease, communicative by contact. It is confined to the skin, rarely affecting the system, and is attributed to bad air, unwholesome food, and want of cleanliness. The inhabitants of cold mountainous countries are particularly predisposed to it, and hence its frequency in Scotland.

The disease shows itself in a number of small pimples about the wrist, hams, waist, and between the fingers, causing an incessant desire to scratch. As these pustules are broken, the fluid which they contain spreads over the adjacent parts, propagating, still farther, the disease. Microscopic animals inhabit this, as well as all other stagnant fluids; but they do not convey the disease. Sometimes the pustules are very large, attended with inflammation, when large boils are produced.

Treatment.—Sulphur is the positive specific. The patient should well rub himself with the sulphur-ointment, before the fire, during twenty minutes; then go to bed and lie twelve hours, which will effect a cure. Some repeat the process a second and third time by way of security. Thorough washing of the skin and purification of the clothes is afterwards necessary. Stimulating food and fermented liquors should, for a short time, be abstained from, and occasional doses of cooling medicine taken. At the French hospitals they have a new method of using sulphur, by which the disagreeable smell is avoided, by dissolving five ounces of the sulphuret of potass in twenty gallons of water, at 98 degrees, in which the patient bathes for one hour, repeating the process from five to ten successive days. Sulphur has also been employed in Paris in the form of vapour. This is accomplished by strewing half an ounce of sulphur, mixed with two drachms of nitre, in a warm pan of hot coals, and with it, warming the bed. The patient is to strip himself naked, get into the bed and be closely covered to prevent the escape of the gas. The process to be repeated seven nights. But when sulphur is objected to altogether, we may effect a cure by preparations of arsenic or oxymuriate of mercury in the proportion of ten grains to an ounce of hogslard, with which the eruptions are to be slightly touched, night and morning. If these applications bring out a rash, their use must be suspended for a few days and then resumed. White hellebore, decoction of tobacco, &c., will also remove this disease.

The species of itch, consisting of small ulcers, is readily cured by the use of sulphuric acid internally; also externally, in the proportion of half a drachm to an ounce of lard.

JALAP.—(*Jalapa*.)—The root of the *Convolvulus Jalapa*, a shrub of the class pentandria, and order monogynia, and a native of South

America. It consists of gum, resin, extractive matter, fecula, lignin, and some salts, and latterly, an active saline principle has been discovered, upon which its cathartic properties are presumed to depend, called *jalapine*. The odour of jalap is faint and slightly nauseous; its taste sweet, and in a small degree pungent. In operation, it is a stimulating cathartic, acting principally upon the colon, and its action is beneficially increased by a combination of calomel, ipecacuanha, and tartarized antimony, or with the super-tartrate of antimony, in the treatment of dropsy. The usual dose is from gr: x to 3ss in powder or pills, and its griping qualities are prevented by the addition of any of the usual essential oils.

Official preparations.—Compound powder of jalap, (*pulvis jalapæ comp.*), prepared by the addition of an equal part of the super-tartrate of potass: dose ℥i to 3i in costiveness, indigestion, and dropsy. Extract of jalap (*extractum jalapæ*), gr: x to ℥i in pills. Tincture of jalap, (*tinctura jalapæ*), ʒi to ʒiv.

JAUNDICE.—(*Icterus*.)—The accession of this disease is marked by languor and inactivity, flatulence, acidity of the stomach and costiveness. In a short time the tunica conjunctiva exhibits a bright yellow, which soon extends over the whole body; the urine is of a high colour and tinges linen yellow; the stools are clayey or gray coloured. There is also a bitter taste in the mouth, vomiting, and an obtuse pain in the right hypochondrium, increased upon pressure, and in very severe cases, pyrexia. In long continued and unfavourable cases, the skin changes from a yellow to a brown, or livid colour, attended with anasarca, or ascites, petechiæ, and maculæ; passive hemorrhage also ensues, and in some cases, symptoms of scurvy. Jaundice is more or less attendant upon all disorders of the liver, insomuch, that some deny it any rank beyond that of a symptomatic affection. The *proximate cause* of jaundice is an absorption, or regurgitation of bile into the system. This may be induced, by obstruction of that fluid, in the *ductus communis choledochus*, either by biliary calculi, inspissated bile, spasmodic stricture of the duct, or pressure upon it, from tumours, schirrus of the surrounding viscera, or the uterus during pregnancy. Jaundice may also arise from a redundant secretion of bile, particularly in hot climates. A disposition to jaundice is generated by an abuse of ardent spirits, a sedentary life, studiousness, grief, anxiety, passion, &c. The pain in the hypochondrium is undoubtedly caused, either by spasmodic obstruction of the duct, or the irritation or distention of that part by the passage of an irregular, or large sized calculus; hence the pain occurring in paroxysms. In such cases, there are often pains shooting up to the right shoulder, and the patient, to obtain relief from the pain in his side, bends his body forwards to the knees. Biliary calculi vary in size from a pea

to a walnut, and can often be detected in the fœces. Upon dissection, they are found in the gall bladder, ducts, or cellular substance of the liver. There is seldom any inflammation attending this disease.

The prognosis is favourable, when recent, or occurring during pregnancy; also when there is an abatement of symptoms, a free state of the bowels, and the urine loses its deep yellow tinge; but unfavourable, when of long standing, when arising from chronic or organic disease, or attended with coldness of the extremities, &c.

Treatment.—When the pain is severe, and attended with fever, venesection should be practised, repeating the operation, if necessary, or applying leeches or cupping-glasses to the part. The warm bath should next be used until some degree of faintness is produced; and afterwards an opiate, repeating it every few hours, together with bladders of hot water, fomentations, blisters, &c., to the side. When the vomiting is excessive, it may be allayed by the common effervescing mixture, the bowels being afterwards kept in a regular condition, and the patient restricted to the anti-phlogistic regimen. Should the disease be accompanied by inflammation of the liver, the treatment necessary in acute hepatitis will be demanded, and when, as sometimes is the case, the organ becomes indurated, the symptoms of chronic hepatitis will require the appropriate remedies.

The convalescence from jaundice is occasionally very tedious; it may be promoted by a light and nourishing diet, a change from town to country air, gentle exercise, and great attention to the bowels, preferring the use of calomel in small doses, to more drastic purgatives.

JAUNDICE IN CHILDREN—(*Icterus Infantum*)—Appears soon after birth, and is characterized by languor, yellowness of the skin, turbidness of the urine, and a slight disposition to coma. It arises from obstruction of the ducts, either from a collection of hardened meconium in the duodenum, or viscid matter in the duct itself.

It is, in general, easily remedied by a gentle emetic, and afterwards keeping the bowels gently relaxed by castor oil, or any other mild aperient. Friction and exercise in the open air, will hasten convalescence.

JOINTS, DISEASES OF.—The joints of the body are subject to a variety of diseases, the severity of which depend upon their particular nature. They are liable to inflammation and abscesses, to injuries from wounds, to a distention of their capsules by an aqueous fluid, as in the affection termed synovial inflammation, and to the peculiar diseases termed white swelling, hip-joint disease, and scrofulous attacks.

The effect produced by contused or punctured wounds, will be appropriately considered under the head of "*Wounds*," confining ourselves

in this instance, to those diseases that properly belong to the structure of joints. And first of

SYNOVIAL INFLAMMATION.—A joint is sometimes swollen from a preternatural quantity of fluid collected in its cavity, without pain or inflammation, arising from a diminished action of the absorbents, or an increased action of the secreting vessels; and this disease may be compared to dropsy of the peritonæum or pleura, or more properly to hydrocele, and it has been properly designated by the terms, “hyarthrus,” and “hydrops articuli;” more frequently, however, there is swelling in a joint, with inflammation and pain, consisting in an inflammation of the synovial membrane, with a consequent increase of the secretion from its surface. In many instances while there is still pain and inflammation in the joint, the fluid is felt indistinctly, as if a considerable mass of soft substance lay over it; and often when the inflammation has subsided, and the fluid is no longer to be felt, the joint remains swollen and stiff; painful when bent or extended, and liable to a return of inflammation from slight causes.

The usual consequences of synovial inflammation are, first, a preternatural secretion of synovia; second, effusion of coagulated lymph into the cavity of the joint; and third, in some cases a thickening of the membrane, a conversion of it into a gristly substance, or an effusion of coagulated lymph, and probably of serum, into the cellular texture by which it is connected to the external parts.

The membrane itself may be of a dark red colour, the vessels as numerous and as much distended with blood as those of the tunica conjunctiva in ophthalmia. Inflammation will sometimes produce adhesions of the reflected folds of the membrane to each other, resembling the inflammation of the serous membranes, but in the latter it is not very uncommon for suppuration to take place, independent of ulceration; and although one example was found where the same occurred in the synovial membrane of an elbow joint, the elbow being filled with pus, without an ulcerated surface, (following a small wound penetrating into the articular cavity,) it is not generally the case, and may be said never to occur, unless after mechanical injury; and while an inflammation of the peritonæum or pleura, slight in degree and short in duration, is sufficient to produce an effusion of coagulated lymph, violent and long continued inflammation has only the same result in the membrane of the joints.

A slight adhesion of the cartilage to the bone may also arise in consequence of great disease in the synovial membrane, and this may be observed when the cartilage is about to ulcerate. Ulceration of the cartilages sometimes appear as consequences of neglected synovial inflammation; but Mr. Brodie considers, that in the majority of cases,

where it is combined with synovial inflammation, that the former is the primary affection, and that synovial inflammation takes place subsequently, in consequence of the formation of an abscess in the articular cavity.

Causes and symptoms.—The inflammation may be extended from another texture, or it may have its origin in the membrane itself.

It seldom attacks children, rarely youth, and generally adults, and this fact assists greatly in forming a diagnosis. It may take place as a symptom of constitutional disturbance, where the system is affected by rheumatism, or under the influence of mercury, and under a variety of other circumstances ; but in these instances the attack is not generally severe, occasioning a preternatural secretion of synovia, but no effusion of coagulated lymph or thickening of the membrane. Sometimes the greater number of joints are attacked at once, and sometimes it even extends to the synovial membrane which constitutes the bursæ mucosæ and sheaths of the tendons, and at others it flies from one joint to another. In some cases it is entirely local, produced by a sprain or slight injury ; sometimes it arises from no evident cause : on the whole, the application of cold is its most frequent cause, and this explains why the unprotected knee is so frequently its seat, and why the well covered hip and shoulder are so rarely affected. When confined to a single joint, its character is more severe, and its duration longer ; the joint is generally left more or less impaired, and is sometimes destroyed.

It generally has the form of a chronic inflammation, impairing, without destroying the motion of the joint, and which, if not relieved in the first stage, may continue for months or even years. The pain first experienced in a joint may be referred to one spot in particular, although the whole articulation is affected, when it continues to increase for a week or ten days, until it is at its height ; sometimes, even at this period, the pain is trifling and but little complained of, but generally it is considerable, and every movement distressing. A day or two after the pain is felt, the joint appears swollen, which at first rises entirely from a preternatural collection of fluid in its cavity, and in the superficial joints, it may plainly be felt ; after this has existed for some time, the fluid is not so distinct, from the synovial membrane having become thickened, or from an effusion of lymph, on its inner or outer surface ; when the disease is of long standing, fluctuation can scarcely be felt, and the mobility of the joint is in a greater degree suspended.

The form of the swelling is not that of the articulating ends of the bones, and therefore differs from the natural form of the joint ; this arises chiefly from the distended state of the synovial membrane, and hence its figure depends, in a great measure, on the situation of the ligaments

and tendons which resist it in certain directions, and allow it to take place in others. Thus, when the knee is affected, the swelling is principally observable on the anterior and lower part of the thigh under the extensor muscles, where there is only a yielding cellular structure between those muscles and the bone; there is considerable swelling also, in the spaces between the ligament of the patella and the lateral ligaments.

In the elbow, the swelling is principally observable in the posterior part of the arm, above the olecranon, and under the extensor muscles of the fore arm; and in the ankle it shows itself on each side in the space between the lateral ligament and the tendons, situated on the anterior part. And thus the form of the swelling, whether arising solely from the presence of fluid, or its union with solid substance, depends greatly on the neighbouring ligaments and tendons, and on their degree of resistance, and this knowledge also assists in forming a diagnosis.

In the hip and shoulder, the disease occurs less frequently, and here the effused fluid cannot be felt, but the swelling is perceptible through the muscles. When the hip is affected, in the first instance a tumefaction may be observed in the groin and in the nates also; but when it has existed for some time, the nates assumes a flattened appearance, in consequence of the glutæi muscles wasting from want of use. The pain is usually confined to the hip, although it has also been referred to the knee. To distinguish synovial inflammation of the hip joint from ulceration of the cartilages with which, at its commencement, it has sometimes been confounded, attention must be paid to the following circumstances: where the synovial membrane is inflamed, the pain is more severe at the beginning than in the advanced stage of the disease, and it never amounts to the excruciating pain felt in ulceration of the cartilages; the pain is aggravated by motion, but not by pressing the cartilaginous surfaces against each other, so that it does not prevent the weight of the body being supported on the affected limb; the wasting of the glutæi muscles is also preceded by a swollen appearance of the nates.

After inflammation of the synovial membrane has subsided, the fluid is absorbed, and, in many instances, the joint regains its figure, but retains a slight degree of stiffness; sometimes the swelling has the same form it possessed during the continuance of inflammation, and while fluid was contained, and we may then conclude that it depends principally on the inner surface of the synovial membrane having a thick coating of coagulated lymph; at other times the swelling has the form of the articulating extremities of the bones, that is, nearly the natural form of the joint; and this probably arises from the thickened state of the synovial membrane itself: from either of these causes the patient

is liable to a recurrence of the disease from cold or fatigue, and sometimes even without any assignable cause. In cases where the synovial membrane is thickened, it occasionally happens that a certain degree of inflammation lurks in the part, and extends to the other textures, and ultimately ulceration of the cartilages takes place, followed by suppuration, and the total destruction of the articular surfaces; and when once suppuration has taken place, little advantage can accrue from any treatment but amputation.

A more acute form of inflammation may rarely occur in which every described symptom is aggravated with redness of the skin and immoderate swelling, which, in a few days, either ends by resolution, or passes into the chronic stage: there are numerous degrees also betokening this acute and the chronic form of the disease.

Treatment.—This will, in a great measure or wholly depend upon the cause of attack; if occasioned by an improper use of mercury, the free use of sarsaparilla, and a nourishing diet may be adopted, whilst leeches are applied to the part; or where much inflammation prevails, venesection practised. If the disease proceed from rheumatism, diaphoretics must be excited by the combination of opium and colchicum, or other medicines of that class, resorting, if necessary, to the same local means, as in the former instance. When of scrofulous origin, the treatment necessary in that disease will be required, varied according to the symptoms and condition of the patient. In all cases, the bowels must be kept regulated by the occasional use of a saline cathartic. As general local remedies, warm fomentations and poultices are useful when the integuments are rendered very tense and painful by the pressure of the effused fluid, whilst cold evaporating lotions may be employed when the sense of heat is extreme.

When the inflammation is more of a chronic character, its relief is frequently more difficult than in an acute attack. A state of perfect quiet is of the utmost consequence, not only in the abatement of the disease, but sometimes in the preservation of the limb; blood may be repeatedly abstracted from the neighbourhood of the joint, by cupping, applying cold lotions in the intervals, and when all the symptoms of an excess of action have subsided, blisters may be advantageously employed. If the disease exist in a deep seated joint, as the hip-joint, the blisters may be applied immediately over it, but when the joint is superficial, as the ankle, wrist, or knee, they should be placed at a little distance. It may here be remarked, that blisters are nearly always improper in diseases of the joints, until after the abstraction of blood. Liniments may be used when the inflammation is relieved, and passive motion is first attempted. The soap and camphor ointments, (the latter with the addition of the liquor ammoniæ,) or the liniment of ammonia, with the

oil of turpentine, are generally employed. As a powerful counter-irritant, one part of sulphuric acid may be added to three of olive oil, which may be weakened by the addition of more oil, when the cuticle becomes tender, and applied to the affected part, until considerable external inflammation is excited. The tartarized antimonial ointment will frequently act beneficially as a counter-irritant, and is greatly to be preferred to the inert application of plasters of gum ammoniac; these latter, in fact, are of no service during the term of inflammation, and yield in usefulness to a variety of other remedies in the subsequent stage. If the joint remain weak for a considerable time, and is influenced by changes of temperature, these plasters may be worn with advantage in preventing a relapse.

Issues and setons are seldom advisable in any period of synovial inflammation, and are better regarded as fitting remedies in the secondary disease, when ulceration of the cartilages is established.

Friction with camphorated or mercurial ointment, or by the hand with starch powder, must be exercised with abundant caution, as it will readily bring back an acute inflammation of the part. Its principal use is, when the stiffness of a joint depends upon the contracted state of the muscles from long confinement; and in such a case, to be of any avail, it should be persevered in for two or three hours daily.

Pumping hot water upon a joint, as recommended by Le Dran, has occasionally been of service in very chronic cases; but the same objection to friction applies also to this remedial process.

Ulceration of the Synovial Membrane.—When an abscess is formed in a joint, an ulcerated opening takes place in the synovial membrane through which this matter is discharged; this rarely occurs as a primary affection, but it is a most singular circumstance, that a disease, apparently so slight, and not occurring in a vital part, should disturb the constitution sufficiently to occasion death.

In two cases, narrated by Mr. Brodie, slight accidents of the hip and shoulder joint were followed by great pain, slight swelling, much symptomatic fever, and death. Upon dissection, the joints were found to contain about half an ounce of ill-conditioned pus, and the synovial membrane, in one case, where it was reflected over the neck of the femur, and in the other, over that of the humerus, was destroyed by an ulceration about the size of a shilling.

In these cases, the inflammatory fever is quickly converted into the hectic, and the most active treatment is of little or no avail.—See *Wounds of Joints*.

A morbid change of structure in the Synovial Membrane, peculiar to this texture, also takes place in the conversion of the membrane into a pulpy substance, of a light brown colour, and about one third of an inch

thick, generally intersected by white membranous lines, and with red spots formed by small vessels; this change in the knee joint not only takes place where the loose folds of the membrane are reflected over the bones, crucial ligaments, or fatty substance, but also in its reflection on the edge of the cartilaginous surfaces; at the same time the joint is found to contain a considerable quantity of bad pus.

As the disease advances, after the synovial membrane has lost its natural organization, it involves all the parts of which the joint is composed, ulcerating the cartilages, producing caries of the bones, a wasting of the ligaments, and abscesses in different places.

This change is analagous to tubercles of the lungs, schirrus of the breast, fungus hæmatodes of the testicle, &c., in which the natural structure of the organ is destroyed, and a new and different structure formed in its place; and it bears a similar resemblance in its progress, inflaming, ulcerating, suppurating, and destroying, after affecting contiguous parts: like them this complaint is slow, and remains frequently indolent for a considerable period.

This affection is rarely met with but in the knee; Mr. Brodie has never seen it in the hip or shoulder, and this may be owing to the uncovered state of that limb, rendering it peculiarly liable to the principal disposing cause, "cold."

It would be desirable to know what is the first change in the organization of the part, and then to trace the changes in the other textures, until destruction was completed: in all probability the synovial membrane is in general, the first affected; but Mr. Brodie relates one case where the synovial membrane was unaffected, while a morbid change had occurred in the cartilages and cavity of the joint.

Symptoms.—It seldom occurs much above the age of puberty, and can be chiefly traced to repeated attacks of inflammation, thus resembling the diseases with which it has been compared. Upon examination after amputation, the synovial membrane is nearly, in every instance, affected, but it is possible, that if the joint could be examined at an earlier stage, some other morbid change might be detected as the source. In the origin of the disease, there is slight stiffness and tumefaction, without pain, and with little inconvenience, but these gradually increase, and in the chief number of cases, restrain the slightest motion; the form of the swelling resembles that from inflammation of the synovial membrane, but is less regular; the swelling is soft and elastic, and apparently fluctuating, especially when one hand only is employed in examination: the use of the two hands will, however, detect the want of fluctuation.

Little suffering occurs until the formation of abscesses, and the cartilages ulcerate, and even then the pain is not so severe as when the ulceration

of the cartilages is the primary affection ; the abscesses also discharge less, and heal more readily ; at this time, however, hectic fever sets in, and the patient sinks, unless saved by amputation.

The progress of this disease varies ; it may remain months, and even years, without much alteration, and here again is its likeness perceived with the diseases with which it has been put in comparison.

The diagnosis is seldom difficult ; its gradual progress, the stiffness of the joint without pain, and the soft elastic swelling without fluctuation, proclaim the distinctions from other morbid affections of the joints. It is most likely to be confounded with chronic inflammation of the synovial membrane.

Treatment.—The attempts to check the progress of this disease are too frequently unavailing, for where the natural structure is lost, no restorative process is at our command, and life is only preserved at the cost of amputation. At the very commencement of the disease, the chance of success is alone afforded ; the limb should be kept in a state of perfect rest, and blood be drawn from it by leeching or cupping, either applying cold lotions, if the pain and heat be excessive, or warm fomentations and poultices ; and should the tension be great, a removal to a warm climate, and a light and nourishing diet are the proper adjuncts to this treatment, which after all can scarcely be depended upon in the removal of so formidable a disease from the system.

Ulceration of the Cartilages of Joints.—Cartilages of joints are less vascular, and not so liable to inflammation as other cartilages, their articular vessels, in the adult, carrying no red blood ; when inflammation takes place, it terminates in ulceration, and in the formation of bone. It may be the consequence of suppuration of the cartilage itself, or of its bony connecting surface, but, in many instances, the inflammation appears rather attendant on, than the cause of the ulcerative process. Suppuration seldom takes place in articulating cartilage, the ulcer is small, when it occurs, and caries are frequently produced without matter being formed.

When ulceration of a cartilage occurs in superficial joints, it constitutes the disease called "*white swelling*," and in the hip-joint, it has been named "*morbis coxarius* ;" "*disease of the hip* ;" "*scrofulous hip*," or "*scrofulous caries of the hip-joint*."

It may be observed in this disease : first, that in its more advanced stage, none of the parts entering into the composition of the joint retain their natural structure ; the soft parts are blended in a confused mass, the head of the femur sometimes destroyed, the projecting margin of the acetabulum often absorbed, and in a few instances, a portion of the carious bone is found dead and exfoliating. Second, in whatever period of the disease the parts may be examined, the cartilages are

ulcerated, but the soft parts and bones vary much according to the advanced stage of the case.

From these premises and the appearance, in several cases, in which the disease has been found in its incipient stage confined to the cartilaginous surfaces, it is apparent that in the ordinary cases of caries of the hip, the cartilage is primarily affected, and the following may be stated to be the general progress of the disease.

Ulceration in the cartilages commences in the acetabulum, in the head of the femur afterwards, and sometimes in both at the same time.

Ulceration extends to bones which become carious; the head of the femur diminishes in size, and the acetabulum is rendered deeper and wider.

An abscess forms in a joint, which, after some time, makes its way by ulceration through the synovial membrane, and capsular ligament, into the thigh or nates, and through the acetabulum into the pelvis. Sir A. Cooper has two specimens, in each of which the abscess had burst into the rectum. Finally, in consequence of the abscess, the synovial membrane and capsular ligament become thickened and inflamed, the muscles alter in structure, sinuses are formed, and at length the soft parts are all blended together.

There are two species of WHITE SWELLING, commonly so called, the *scrofulous* and the *rheumatic*. The skin in this disease retains its natural colour; the swelling, where the knee is affected, shows itself in the hollows on each side the patella, is firm, but somewhat elastic, and generally extends around and on the whole joint, which exhibits uniform enlargement, with an appearance of blue veins, and a shining smoothness. The pain is, in some cases, trifling, in others severe, and generally confined to one spot; sometimes preceding the swelling, at others attended with periodic intermissions, and generally increased by warmth. There is often a great degree of heat about the part. Unable to bear his weight on the limb, the patient acquires a habit of touching the ground with his toe, and hence the limb becomes permanently bent. At length, after weeks or months, ulceration and discharge takes place. The matter discharged has the flaky and aqueous appearance always observed in scrofula, the cartilages become absorbed, caries seizes the ends of the bones, particularly the tibia, and ankylosis ensues. This continues for some time, when the health becomes seriously impaired, debility and emaciation follow, hectic fever preys on the patient, and life soon becomes in imminent danger, unless relieved by amputation of the diseased limb. In the *rheumatic* species, the pain is generally diffused over the joint, and never precedes the swelling. The disease is often attended by rheumatic pains in other parts of the body, and a disordered state of the *primæ viæ*.

Treatment.—White swelling is acute or chronic; when acute, we may adopt the usual measures for the treatment of inflammation in general, especially local bleeding to the amount of several ounces, repeating the operation every day or two until the pain, heat, and soreness are removed. Absolute rest is highly necessary, and cold lotions may be constantly applied. No time should be lost in resorting to these remedies, as the disease makes rapid progress towards ulceration during the acute stage. As soon as the inflammatory symptoms have yielded, the chronic stage may be said to exist, and the above practice must be relinquished in favour of repeated blisters alternately on each side of the joint, or keeping a blistered surface discharging for some days, by means of the savin cerate. Issues may also be tried, besides frictions with the hands or flesh brush, rubefacient liniments, salt water bathing, electricity, &c., as in scrofula. In the *rheumatic species*, besides the local treatment, the bowels must be closely watched and regulated. Fomentations and poultices are of doubtful efficacy. Bandaging the joint is a good auxiliary, and, as there is a tendency in the limb to a bent position, it should be kept straight by means of a splint, so that, if ankylosis takes place, the limb will be more useful in that position.

DISEASE OF THE HIP-JOINT.—(*Ischias.*)—This affection is very analogous to white swelling, and has, probably, the same different species. It is mostly met with in children, although no age or sex seems exempt from it.

Symptoms.—It comes on in the most insidious manner, producing but little pain in the outset; slight weakness and limping are first observable, with a bent position of the knee, and pain shooting from it down to the outer part of the fibula; and this has often induced practitioners to apply remedies to the knee, instead of the hip. There is often pain in the groin, and soreness if the acetabulum be pressed. The limb begins to waste early in the complaint, evidenced by a flatness and want of rotundity in the glutæi muscles. But the most extraordinary circumstance is an increase in the length of the limb, (which may be seen by comparing the two limbs at the condyles,) often amounting to three or four inches. This, in Mr. Hunter's opinion, arises from that side of the pelvis becoming lower, or yielding in the direction where the weakness and pain are experienced. Though the pain and contraction of the knee continue, that joint can be moved with ease, while the least motion of the hip-joint gives acute pain. This may be considered the *first stage*, during which the health is but little impaired. The *second stage* is suppurative, and is attended with heat, pain, tension, and sometimes redness and swelling, together with sympathetic fever. At length the formation of matter is announced, by a lessening of pain and heat, rigours, starting and catchings of the limb during sleep, and a pointing of the fluid

externally. A rapid obstruction of the whole structure of the joint ensues, the head of the femur becomes dislocated, turned upwards and outwards, the limb shortened, and the toes turned inwards; hectic follows, which usually terminates fatally. The causes are the same as in white swelling.

The *treatment* is also analogous to that of white swelling. Local bleeding should be resorted to the moment the disease is suspected. Twenty or thirty leeches may be applied every day or two. Issues seem more beneficial in this case than blisters, and should be applied in the hollow of the trochanter major. When matter points, a small opening only should be made. Nothing is more necessary than absolute immobility of the limb. Anchylosis is frequent after recoveries. All cases, however, do not proceed with the same rapidity and regularity as above described.

CARTILAGINOUS SUBSTANCES IN THE JOINTS.—These mostly occur in the large articulations, particularly in that of the knee. They are floating about within the capsular ligament, are moveable, can sometimes be plainly felt, and then disappear for a month or two. They produce no other injury than now and then sliding between the articulating surfaces, and suddenly impeding progression. When this happens, some degree of inflammation is often excited. There is generally only one of those substances within the capsule, though Morgagni has found twenty-five, each about the size of a bean. Mr. Hunter has shown, that those bodies are formed by a deposit of coagulated blood thrown out in consequence of a blow or other violence, but remaining attached by a small pedicle until they acquire organization and are converted into a substance like that from whence they derive their support. They subsequently become detached.

Treatment.—A great number of cases may be very materially relieved by wearing a laced cap over the joint, as recommended by Mr. Hey, after placing it in the most favourable situation. But when this method, as well as the application of compresses and bandages, fails to prevent the cartilage from annoying the patient, and he is young, of a good constitution, and desirous of some further steps being taken for his relief, we may extract the substance, when it is favourably situated and distinctly felt. The substance being securely fixed by an assistant, the operator draws the integuments to one side, and makes a longitudinal incision directly upon it, continuing the division of the fascia and capsular ligament in the same place. This will bring the opening in the integuments and capsular ligament not opposite each other; a very desirable circumstance, as it prevents the admission of air, and escape of synovia, thereby favouring union by the first intention. The cartilage being exposed to view, it is to be brought out with a tenaculum.

The wound should then be quickly closed and confined with adhesive plaster, the patient be kept in a state of entire immobility, and confined to an antiphlogistic regimen. If inflammation succeed, it may be combatted with local bleeding, &c.

DROPSY OF THE JOINTS.—*Hydrops Articuli.*—The knee is the most frequent seat of this disease. It consists of a collection of water within the capsular ligament, though occasionally in the bursæ mucosæ, attended with swelling, and when not over distended, by fluctuation. If the limb be extended, a fluctuating swelling is observable on each side of the patella. It is unattended with pain or rigidity, and is a local affection.

Causes.—Rheumatic inflammation, excessive friction, debility from fevers, irritation of the synovial gland by excessive walking, and local violence of any kind. In the opinion of Mr. Russell, some cases of this kind are venereal, and others are serofulous.

Treatment.—The principal object is to promote absorption of the fluid by blisters, friction, rubefacients, camphorated mercurial ointment, or leeches. Pressure by the lace-cap or bandage should never be omitted. The use of mercury, and the application of the electric spark, have occasionally proved useful, and should the disease depend upon debility, wine, bark, and other tonics may be administered. When all these remedies fail, we are compelled to evacuate the fluid. This is done by drawing aside the integuments before making the incision, in order that the two openings in the integuments and capsular ligament may not be opposite each other. Sir Astley Cooper, after cutting the integuments and fascia, opened the cavity of the capsular ligament with a needle, in preference to making a larger opening with a knife. The after treatment consists in subduing inflammation should it arise, and applying pressure and frictions to prevent a re-accumulation of the fluid.

COLLECTIONS OF BLOOD IN THE JOINTS.—These cases are not common, but when they do occur they are consequent on a blow, fall, or other injury. They are known from the suddenness by which they take place; abscesses, tumours, &c., being much longer in their formation. No operation need be performed for its evacuation. Dis-cutients, as vinegar and sal ammoniac and other washes, and afterwards blisters and frictions will usually suffice in the treatment.

ANCHYLOSIS.—This term implies an union of the bones of a joint, so as to destroy its natural motion. It consists of two species; first, the *complete* or *true* ankylosis, i. e. absolute adhesion of the articulatory surfaces of bones and entire loss of its motions, caused by fractures extending into the joint, white swelling, inflammation, &c.; second, the *incomplete* or *false* ankylosis, i. e. rigidity or immobility of the joint, consequent to spasms, blows, rheumatism, long confinement, &c. The

complete is incurable. When ankylosis is expected to take place from long confinement in one position, as under compound fracture, the joint should be daily put in motion, as soon as circumstances will admit; but in many cases, the disease will be aggravated by such movements, and therefore, if ankylosis must take place, it is better to put the limb into a position most favourable for the patient's use hereafter; thus, if the knee or hip be affected, the straight position should be chosen; if the arm or finger, the half bent will be most convenient. In the *incomplete*, we may resort to constant motion, blisters, frictions, issues, also hot fomentations, as well as rubefacient liniments, electricity, and pouring over the part a column of cold water. Consult S. Cooper's Treatise on Diseases of the Joints; Brodie on ditto; Ford on Hip Disease; B. Bell's Surgery; Crowther on White Swelling; Lake's Surgery, &c.

JUGULAR VEIN, BLEEDING IN THE.—This operation may require to be performed in cases of asphyxia, apoplexy, croup, and a variety of inflammatory diseases. In opening the external jugular vein, the patient's head should be laid on one side, and the lower part of the vein pressed upon by the thumb: the orifice should then be made in the direction of the fibres of the platysma myoides muscle, and the vein is not so apt to glide out of the way, when the puncture is made over that portion of the vein, where it glides over part of the sterno-cleido-mastoideus muscle. There is usually little or no difficulty in restraining the hæmorrhage.

JUNIPER BERRIES AND TOPS.—(*Juniperi bacca et cacumina*.) The Juniper is a shrub of the class dicæcia, and order monodelphia, of a strong but not unpleasant odour, yielding the berries and tops which are employed in medicine, as a diuretic, diaphoretic, and carminative. Their taste is warm and pungent, rather sweet when first tasted, but afterwards bitter.

The principal constituents of the plant are, mucilage, sugar, and volatile oil; in the latter of which, in particular, its diuretic properties reside. When bruised and triturated with sugar or a neutral salt, they form an excellent adjunct to digitalis and squill: dose $\mathfrak{z}\text{i}$ to $\mathfrak{z}\text{ij}$; an infusion is readily prepared by adding $\mathfrak{z}\text{ij}$ to a pint of boiling water.

Officinal preparations.—Oil of juniper, (oluum juniperi,) mij to x , rubbed up with sugar or mucilage. Compound spirits of juniper (spiritus juniperi compositus,) $\mathfrak{z}\text{i}$ to $\mathfrak{z}\text{ss}$.

English gin is flavoured by oil of turpentine, which also imparts the taste and peculiar properties to Hollands.

KERATONYXIS, (from *κερας*, a horn, and *νυξις*, a puncture,) a term employed by the German surgeons to denote the operation for cataract, through the cornea or horny coat of the eye.—See Cataracts, in *Eye, diseases of*,

KING'S EVIL.—The old and common name applied to *scrofula*, which see.

KINO.—A gum yielded from the *ptrocarpus erinacea*, the botanical situation of which is not yet determined on. There are three descriptions of this gum: the African, which is the best, the New South Wales, and the Jamaica. Its constituent principles are tannin, extractive matter, gallic acid, oxide of iron, and colouring matter. In operation, it is astringent, and administered in chronic diarrhœa, fluor albus, and in uterine or intestinal hæmorrhages: dose from gr: x to xx, in powder, or in solution, of the powder ʒi, mucilage ʒi, cinnamon water ʒv; two table-spoonsful occasionally.

Official preparations.—Tincture of kino ʒi to ʒij, triturated with mucilage, in order to mix it with aqueous fluids.

Incompatible with the mineral acids, alkalies and their carbonates, isinglass, acetate of lead, nitrate of silver, tartrate of antimony, sulphate of iron, and muriate of mercury.

LACHRYMAL GLAND, diseases of.—See *Eye*.

LACTUMEN, from *lac*, milk, so named from its being covered with a white crust. The *achor* or scald head.—See *Eruptions*.

LAGOPHTHALMIA.—(From *λαλος*, a hare, and *οφθαλμος*, an eye.) *The hare's eye*—*oculus leporinus*.—A disease in which the eye cannot be completely shut, dependent sometimes on paralysis of the orbicularis muscle, or upon the contraction of the cicatrix of a wound, ulcer, or burn upon the upper lid. It may also be produced by staphyloma.

The consequences of this infirmity are extremely unpleasant, as the eye is exposed to a variety of injuries from the continued admission of light to the retina, and the entrance of particles of dust, &c. The treatment resembles that recommended in *ectropium*, (see *Eye*, diseases of,) when the contraction of a cicatrix is the cause; in other cases, the lid may be stimulated by the tincture of cantharides, or by the application of a blister on the neighbouring temple, employing, at the same time, general tonics, cold bathing, &c.

LAPIS CALAMINARIS.—A native carbonate of zinc, employed in collyria, and in the preparation of a common healing ointment, termed Turner's, or the calamine cerate.*

Calamine is usually found combined with some arsenical or sulphurous particles, from which it is separated by roasting.

LAPIS INFERNALIS.—The common name given to the *potassa fusa*, a powerful caustic.

* Turner's Cerate is thus prepared: lard, one pound; yellow wax, five ounces and a half; lapis calaminaris, half a pound; adding the last to the previously melted wax and lard, and stirring till cold.

LARD.—*Adeps*.—Emollient in its application. The basis of most of the ointments employed in medicine.

LARYNGITIS.—Inflammation of the larynx.—See *Cynanche Laryngea*.

LARYNGOTOMY, (from *λαρυγξ*, the larynx, and *τετνω*, to cut.) The operation of making an opening into the larynx.—See *Bronchotomy*.

LATERAL OPERATION.—One of the modes of operating for the stone.—See *Lithotomy*.

LAUDANUM.—The common name for the tincture of opium.—See *opium* and its preparations.

LAUGH SARDONIC.—(*Risus sardonicus*.)—A convulsive laugh, so called from the supposition that it could be produced by eating of the herb *sardonia*. It sometimes succeeds to apoplexy, and has also been observed in cases of poisons by the acrid deleterious vegetables. The muscles of the face and lips are forced into a species of grinning distortion, which will occasionally last for two or three days. If one side of the face be alone affected, the disorder is termed *tortura oris*.

The circumstance under which this peculiar affection is apparent, generally produces great debility; in fact it may be regarded in the light of a symptom to a violent spasmodic disease, occurring and subsiding spontaneously. In common with all spastic diseases, it may be treated with the preparations of musk, castor, assafoetida, camphor, ether, or other anti-spasmodics, and during the fit, opium in large doses may be administered.

The power acquired over the system by this affection is, however, so strong, that it can rarely be cured or even relieved.

LAVENDER.—(*Lavandula*.)—A shrub of the class didynamia, and order gymnospermia. In operation slightly stimulant, and when the oil is extracted from the flowers, and united with proof spirit, of great service in syncope, paralysis, and as an adjunct to stomachic bitters.

Officinal preparations.—The oil, (oleum lavandulæ,) m. ij to x in hysteria and nervous head-ache. Compound spirit, (sp. lavandulæ comp.) 3ss to 3iij, as a stimulant, in languor and fainting—much used as an addition to stomachic infusions.

LEAD.—*Plumbum*.—See *Metals*.

LEECH.—*Hirudo*.—A genus of insects of the order vermes, of which there are several species. The *hirudo medicinalis*, or medicinal leech is principally procured from France or Portugal, and is greatly used for the purposes of topical bleeding. When there is any difficulty in making the leech fasten on the desired spot, it may be moistened with a drop of sweetened milk, or by a little blood drawn from a slight puncture. It is rarely necessary to stay the bleeding occasioned by any

styptics; should the hæmorrhage, however, be extreme, it may be restrained by a dossil of lint wet with spirits, and in more severe cases, by the momentary application of caustic to the wound. There are accidents recorded where the bleeding from leech wounds in children have proceeded to a fatal extent, notwithstanding the use of the actual cautery; this case only takes place in those parts where pressure cannot be applied, as the throat or chest, and it may, therefore, become a matter of consideration, in some instances, how far it is prudent to apply leeches in such situations. It may, however, be observed that, in general, they are perfectly safe whenever their use may be required, when properly attended to.

LEMON.—*Limon.*—(*Citrus medica.*)—The systematic name of the lemon tree and fruit: class polyandria, and order icosandria. The odour of this fruit is fragrant, depending on the essential oil, which gives the rind its warm bitter taste; the juice sharp and gratefully acid, containing citric acid, extractive, saccharine and mucilaginous matter and water, and the seeds bitter. The juice, as a beverage, is useful when diluted and slightly sweetened, in febrile and inflammatory complaints; combined with camphor mixture, decoction of cinchona or wine, it is advantageously employed in remittent fevers, cynanche maligna, diabetes, and lientaria: dose ʒij or more, two or three times a day, diluted according to the taste of the patient.

LENTICULAR, (from *lenticulaire*, doubly convex,) an instrument employed for removing the irregularities of bone from the edge of the perforation made in the cranium with the trephine.

LEPRA,—(from *λεπρος*, the leprosy.)—A scaly disease of the cuticle.—See *Cutaneous diseases*.

LETHARGY.—(Lethargus, from *λῆθμ*, forgetfulness.)—A condition usually symptomatic of apoplexy, or an accompaniment to febrile and other diseases. It is characterized by a heavy and constant sleep, with scarcely any intervals of waking; when aroused the sufferer answers ignorantly or incoherently, and quickly relapses into his former state. Considered as a symptom, it may occasionally be relieved by venescction, cupping or leeches to the temple, and the administration of active cathartics.

LETTUCE.—(*Lactuca*, from *lac*, milk, so named from the milky juice exuding when wounded.)—A biennial plant of the class syngenesia, and order polygamia æquales. The common variety, or the garden lettuce, possesses in a slight degree, a narcotic and diaphoretic property, but the *lactuca virosa* has alone attained any repute for medicinal virtues. The odour of this last mentioned species is very strong and narcotic, resembling that of opium, the taste of the leaves bitter, and its operation is anodyne, diuretic, diaphoretic, and sometimes gently

laxative. It has been employed in dropsies and visceral obstructions, but chiefly when the use of opium was forbidden by the circumstances of disease or the idiosyncrasy of the patient.

The inspissated juice or extract, (*extractum lactucæ*, vel *succus spissatus lactucæ*,) is generally administered in preference to the leaves, and in doses of from three to ten grains.

LEUCOMA, (from *λευκος*, white,) a white opacity of the cornea.—See *Eye*, diseases of.

LEUCORRHŒA, (from *λευκος*, white, and *ρρω*, to flow.)—*Fluor albus*; vulgarly called *the whites*.—See *Uterus*, diseases of.

LICHEN.—(*λειχμν*, a tetter.)—Tetter or ring-worm.—See *Cutaneous* diseases.

LIGATURE.—(*Ligatura*, from *ligo*, to bind,) a thread or silk of different sizes, and well waxed, for the purpose of securing a divided vessel, or for staying the circulation to some particular part, by cutting through the middle and internal coats, and thus promoting the adhesion of the opposite sides. A ligature should be round, and very firm, so as to allow considerable force in drawing it tight, without risk of breaking; and when of this form, and properly applied, it is sufficient for the restraint of any bleeding, or the closure of any vessel, without resorting to the thick and broad tapes, the reserve ligatures, the linen compresses, and other means formerly adopted, and which, after all, only served to multiply the chances of hæmorrhage.

It has been proposed and acted upon by Mr. Lawrence, Mr. Cooper, and other eminent surgeons, to cut off the ends as close to the knot of the ligature as consistent with its security. The foreign matter within the wound is reduced to an insignificant quantity, and in all the instances that have been reported of this practice, no unfavourable circumstances have resulted. The kind of silk-twist, known as the dentist-silk, and which is made of various degrees of fineness, is perhaps, the best substance that can be employed as a ligature.

LIME.—*Calx*.—The oxyde of calcium, one of the primitive earths. It is obtained by exposing limestone, chalk, or marble, which are all carbonates of lime, to a strong heat, when the carbonic acid gas is disengaged in the gaseous state, while the lime remains.*

When pure, lime is of a fine white colour, and moderately hard, having an acrid alkaline taste, and requiring an intense heat for its fusion. If a little water be thrown upon it, it is quickly absorbed, and great heat is

* If very pure lime be wanted for chemical or medical purposes, it may be procured from carara marble or oyster shells, reducing them to powder, dissolving the powder in pure acetic acid, and afterwards precipitating the solution by carbonate of ammonia. This precipitate should be washed repeatedly in distilled water, and when quite dry, exposed to a white heat for some hours.

evolved. Water dissolves about the 1.450th. part of lime according to Davy, and it is more soluble in cold than in hot water. It turns the vegetable blues to a green, and turmeric paper to a brown colour.

The principal use of lime in medicine, is in the preparation of the liquor calcis, generally called lime water. It is made by the addition of twelve pints of distilled water, to half a pound of lime, using the clear solution, after letting the mixture stand in a covered vessel for a few hours, and which consists of about one grain of lime to an ounce of water. In operation, it is astringent, tonic, and antacid, frequently administered in the diarrhœa of children, in diabetes, fluor albus, &c.: dose $\mathfrak{z}\text{ij}$ to $\mathfrak{z}\text{viij}$, with milk. Externally it is sometimes applied to foul and cancerous ulcers.

Of the different salts of lime but few are employed in medicine; the most conspicuous is the chloride, which has of late been so frequently employed as a disinfectant. This is prepared either by the addition of chloric acid to the salifiable base, or by passing a solution of chlorure through its solution in water. The chlorure of sodium, as it is termed, by Labarraque, of Paris, has attained a deserved celebrity.

The carbonate of lime occurs in various forms, and is native in every country of the globe; it is employed chemically in the preparation of the muriate of lime, and carbonic acid. The phosphate of lime is chiefly used in the formation of phosphate of soda.

LINCTUS, (from *lingo*, to lick.)—A term in pharmacy, applied to those preparations that are of the consistence of honey and too bulky to be formed into pills, and which it is necessary to swallow from a spoon.

LINSEED.—(*Linum usitatissimum*.)—The systematic name of the common flax, an annual plant, of the class pentandria, and order pentagynia. These seeds contain a large proportion of mucilage, which is readily yielded to warm water, and about one sixth their weight of fixed oil, obtained by expression. Half an ounce of the unbruised seed is sufficient in infusion for a pint of water, and forms an admirable demulcent and emollient drink. The crushed seeds are used in the preparation of poultices, which are readily made by stirring the powder into boiling water. They are applied to parts affected with pain or phlegmonous inflammation, and also to wounds, when an emollient poultice is required.

A compound infusion of linseed, formed by the addition of $\mathfrak{z}\text{iv}$ of liquorice root, to $\mathfrak{z}\text{i}$ of the seeds, and two pints of boiling water, is sometimes directed as a demulcent, in cases of catarrh, gonorrhœa, or pneumonic affections.

The oil of linseed (oleum lini,) has occasionally been administered in ileus, when other cathartics have failed; it is, however, generally em-

ployed in the form of glyster, in flatulent cholic attended with costiveness, and in abrasions of the rectum. The celebrated Carron oil, so called from its use at the Carron iron foundry, in Scotland, or the linimentum aquæ calcis, the common and excellent remedy in burns, where the sensibility of the part is not destroyed, is prepared by the mixture of equal parts of linseed oil and lime water.

LINUM CATHARTICUM, *purging flax*, or *mill-mountain*.—A cathartic plant, the qualities of which reside in its extractive matter: 3i of the dried plant may be given in substance, or a handful when fresh gathered infused in a half pint of boiling water.

LIPOMA, (from *λίπος*, fat.)—A soft and indolent tumour formed in the cellular substance, from an excess of adeps.—See *Tumours*.

LIPPITUDO, (from *lippus*, blear-eyed.)—A puriform discharge from the margins of the eye-lids.—See *Eye*, diseases of.

LIQUORICE.—*Glycyrrhiza*.—(*Glycyrrhiza glabra*.)—A perennial plant of the class diadelphia, and order decandria, and originally a native of the south of Europe. Its constituent parts are gum, with a peculiar modification of saccharine matter, termed *glycion*, or sugar in its purest form, for it is not fermentable; water extracts both principles, but by long decoction it becomes bitter. Alcohol is the solvent of its saccharine matter only. In operation, liquorice is demulcent, and of considerable use in catarrh, and pulmonary attacks. It is advantageously employed as a vehicle for the administration of other and more nauseous remedies. The common preparation, Spanish liquorice, is its extract or evaporated decoction.

Liquorice enters into the composition of the compound decoction of sarsaparilla, the compound infusion of linseed, the confection of senna, &c.

LITHIASIS, (from *λίθος*, a stone.)—The formation of stone or gravel in the bladder.—See *Urinary Organs*, diseases of; and *Calculus*.

LITHONTRIPTICS.—(*Lithontripticus*, from *λίθος*, a stone, and *τρίβω*, to bear away.)—That class of medicines which are supposed to possess the property of dissolving calculi in the urinary passages.

According to Dr. Wollaston, those calculi composed of uric acid, are by far the most prevalent, and are distinguished by a red or dark yellow colour, generally a rough surface, and are acted upon, (out of the body,) by weak alkaline preparations, but not by acids. For such, lime water, the solution of potass, magnesia, soda and potass waters may be indicated. The *fusible* calculi as well as the *bone-earth*, are affected by acids, particularly the muriatic, which may, therefore, be constantly administered, in any convenient vehicle. The mulberry calculus, the most uncommon species, known by its rough protuberances, weight, and compactness, and consisting of oxalate of lime, is the most

difficult of solution: Fourcroy found it, in some degree, acted upon by nitric acid.

It is, however, extremely doubtful, whether any medicines can act upon a calculus; the changes to which every remedy is subject in the alimentary canal, and by the lymphatic and vascular systems, must not only alter their character, but prevent their reaching the bladder in a sufficient quantity to produce any decided effect; still it is certain that some of the lithontriptics relieve the torture occasioned by stone in the bladder, particularly when combined with narcotics. The union of opium with the alkalies, for instance, offers an invaluable resource; henbane may also be advantageously combined with a lithontriptic, as few narcotics are more capable of allaying nephritic irritation.

LITHONTRIPTOR.—The name of an instrument invented by Dr. Civiale, in Paris, for breaking the stone in the bladder, and thereby rendering the operation of lithotomy unnecessary.

LITHOTOMY, (from *λίθος*, a stone, and *τεμνω*, to cut.)—The operation of cutting into the bladder for the purpose of removing a stone, may be performed through the perineum, above the pubes, or through the rectum. In the first mode, when the prostate gland is cut sideways, the operation is denominated the lateral; the second, the high operation; and the third, the posterior, or recto-vesical operation.

Lateral operation.—The method of opening the bladder by cutting the prostate gland laterally, was first performed towards the close of the seventeenth century, by Jaques Baulot, commonly called Frere Jaques, a French monk, who without any knowledge of anatomy, journeyed about the country, performing the operation of lithotomy and hernia. He executed the former by first passing a catheter, and then, with a double edged knife, cutting by its side through the perineum, straight forwards into the bladder.

In the hands of Cheselden, a well educated man, a good anatomist, and an experienced surgeon, this operation was considerably improved. He divided the urethra, from its membranous portion of the prostate gland, by cutting with a knife on a grooved staff, and opened the bladder with the blunt gorget, pushing it through the substance of the prostate gland.

There are three instruments invented for cutting the prostate gland in this operation, each of which has its particular advocates among surgeons of the present day. First, the knife, the most ancient method, is preferred by many; second, the lithotome cachè invented by Frere Come, a French surgeon, is generally employed in the hospitals at Paris; and third, the cutting gorget, first used at St. George's hospital, London; the last is, perhaps, the instrument in most frequent use among English surgeons.

Lateral operation with the Beaked Knife.—The patient being seated on the edge of a table of convenient height, his back supported by pillows, his thighs separated, elevated towards the abdomen, and the soles of his feet grasped in the palms of his hands; a bandage is looped round each wrist, and continued, encircling each ankle, wrist, foot, and hand, so as to bind firmly the hands to the feet: another bandage may be passed from under each ham over the shoulders, and fastened behind the neck. The position will be still better preserved by an assistant standing on each side, giving further support to the limbs, and keeping the thighs separated by slightly pressing the knees outwards.

The operator then taking the grooved staff, smeared with oil, between the thumb and first two fingers of his right hand, passes it into the bladder, and having felt the stone, rests its extremity against it. An assistant, standing on the patient's left side, takes hold with his right hand, of the handle of the staff, which he keeps steadily fixed, nearly perpendicular, but slightly inclined to the right side. The operator seated on a low chair, with a double edged scalpel, held like a pen, makes his first incision through the integuments and fat, beginning about an inch below the symphysis pubis, close to the raphe on its left side, and continues it obliquely downwards and outwards, between the anus and tuberosity of the ischium; dividing the intermediate space into three parts, it finishes exactly at the point where the outer and middle parts join, and from whence a line, if passed across the anus, would separate it into two equal portions. The next incision is between the crus and bulb of the penis, through the accelerator musele, which lays the bulb bare; this being pushed aside by the left index finger, the transversales perinæi museles are divided in the direction of the external wound. With the same finger, beyond the bulb, the operator feels the staff where it is situated in the membranous portion of the urethra, by cutting through which, with the point of his knife, he opens into the groove. Keeping the nail of his forefinger in the groove, he takes the knife with which he purposes dividing the prostate, and passing it along his finger, fixes its beak in the groove of the staff; then rising from his seat, he takes the handle of the staff between the thumb and first two fingers of his left hand, and bearing it towards himself, slides the knife forwards along the groove into the bladder. The prostate is now to be divided by drawing out the knife, at the same time cutting through the gland in a direction downwards and outwards, which being finished the staff may be withdrawn.

The left forefinger is then to be passed by the wound into the bladder, and the forceps flatly introduced along its surface, when it may be removed. The stone being felt for, with the blades of the forceps closed, and discovered, should be seized between them, if possible, in the direc-

tion of its long diameter, and drawn slowly out, alternately raising and depressing the instrument; or if the stone be regularly formed, inclining it from side to side, keeping at the same time the first two fingers of the left hand between the handles, thus preventing the stone from being broken by the too forcible approximation of the blades.

Lateral operation with the Lithotome Caché.—This instrument, generally employed by French surgeons, is recommended to be used as follows: The patient is to be placed, and the operation proceeded with as before, till the staff is laid bare, the operator keeping the nail of his left index finger resting in the groove. He then takes the lithotome caché by the handle, its blade being properly set, and passes it along his finger until its beak enters the groove of the staff, which is proved by making its point pass backwards and forwards along it. Then rising he takes hold of the staff with his left hand, and whilst he depresses it so as to make it perform a semi-circle, pushes the lithotome along the groove into the bladder, and then withdraws the staff. The instrument being in the bladder is to be lifted upwards to avoid the rectum, and pressed towards the patient's right side, to steer clear of the left pudic artery. These cautions being observed, and the concealed blade inclined so that in coming forth it will cut the prostate downwards and outwards, the handles are to be approximated, the blade raised, and the gland being cut as just directed, the instrument is to be withdrawn in the direction of the external wound. The forceps may then be introduced along the finger, though M. Lisfranc recommends the introduction of a grooved conductor in the form of a blunt gorget. He directs it to be passed with its convexity upwards, and when in the bladder to be reversed, and the forceps introduced along its cavity: it is then to be withdrawn in the same manner as it entered, with its concave side downwards, and the stone felt for and extracted as before.

Mons. Dupuytren has lately constructed and used a lithotome caché with two blades, so disposed as to cut both left and right at the same time, on being withdrawn from the bladder; thus dividing the prostate gland into two halves, the one anterior, the other posterior, and leaving an opening nearly similar to that made by Sir Astley Cooper's double edged gorget.

Sir Astley Cooper, and Mons. Dupuytren, in the construction of these instruments, both seem to have had the same object in view: namely, that of more certainly avoiding the pudic artery.

Lateral operation with the Gorget.—The groove in the staff being opened, and the finger nail resting in it, as in the former operations, the operator takes the gorget in his right hand with its cutting edge directed obliquely downwards, and passes it along his finger till he fixes its beak in the groove of the staff, when he moves it backwards and forwards,

to ascertain whether it is securely fixed. Then rising, he takes as before, the handle of the staff in his left hand, and having brought it towards himself, pushes the gorget horizontally forwards in the direction of the bladder and so cuts through the prostate gland. The urine immediately flowing over the gorget, proves the entrance of the instrument into the bladder, when the staff is to be withdrawn. The forceps may be passed flatly along the surface of the gorget, which is then to be taken away, and the stone felt for and extracted as before.

Lateral operation, with the Knife and straight Staff, as performed by Mr. Aston Key.—Mr. Aston Key, in his Treatise on the Section of the Prostate Gland in Lithotomy, after adverting to the methods of performing the lateral operation, by Cheselden, Sharp, J. Bell, Martineau, &c., &c., and after making some forcible and practical observations on the difficulty and danger attending the use of the gorget, in conjunction with the curved staff, proceeds as follows :—

“With a view to obviate the evils attending the employment of the gorget and curved staff, and, at the same time, to adhere closely to the operation of Cheselden, I use a straight director, which I find to answer all the purposes of a common staff, to be entirely free from its objections, and to combine advantages which a curved instrument cannot possess.

“I was first led to try an instrument of this form, on the dead subject, by the following accidental occurrence : Being called upon to examine a child who had died with stone in its bladder, I was desirous of performing the operation before making any examination of the body : and having neither staff, gorget, nor stone knife with me, I was obliged to operate with a common director, a scalpel, and dressing forceps ; and I was forcibly struck with the facility with which the director conducted the knife into the bladder.

“The introduction of this instrument is not attended with difficulty ; it enters the bladder of the adult, or infant, with as much facility as one of the accustomed form. When held in the position for the first incision of the operation, it might strike a surgeon, in the habit of using a common staff, that the point of the director was not in the bladder, an objection, that if correct, would justly condemn it as a dangerous instrument. To satisfy my own doubt on the subject, when first I used it, I cut open the bladder, while an assistant held the director, and in every subject on which I tried, I found the extremity projecting some way into the base of the bladder. At first I had the extremity made straight, but thinking that in depressing the handle it might be caught by a projecting fold in the bladder, which would considerably embarrass the operator, I had the point slightly curved upwards, and as the knife is never introduced so far into the bladder as to reach the curve, it will cause no

difficulty in its introduction. The groove is made somewhat deeper than in the common staff, to prevent any risk of the knife slipping out. The extremity is not grooved, but rounded like a common sound, to prevent abrasion of the prostate or mucus lining of the bladder. The handle is somewhat larger, to afford a better purchase to the hand of the operator.

"The advantage of a straight over a curved line, as a conductor to a cutting instrument, is too obvious to require any comment, but its chief superiority consists in allowing the surgeon to turn the groove in any direction he may wish. Before carrying the knife into the prostate, the groove, which has been held downwards for the first incision, may be turned in any oblique line towards the patient's left side, that the operator may think preferable for the division of the prostate. Nor does it preclude the use of the gorget: this instrument may be propelled along the straight groove, with more safety than in the curved staff.

"The knife resembles, in form, a common scalpel, but is longer in the blade, and is slightly convex in the back near the point, to enable it to run with more facility in the groove of the director. The scalpel blade has this advantage over the common beaked lithotome, that the external incision can be made with the same instrument, as the section of the prostate gland, thus rendering a change of instrument unnecessary.

"The mode of conducting the operation is as follows:

"An assistant holding the director with the hand somewhat inclined towards the operator, the external incision of the usual extent is made with the knife, until the groove is opened, and the point of the knife rests fairly in the director, which can be readily ascertained by the sensation communicated; the point being kept steadily against the groove, the operator, with his left hand, takes the handle of the director, and lowers it till he feels a check, keeping his right hand fixed; then with an easy simultaneous movement of both hands, the groove of the director and the edge of the knife are to be turned obliquely towards the patient's left side; the knife having the proper bearing, is now ready for the section of the prostate; at this time the operator should look to the exact line the director takes, in order to carry the knife safely and slowly along the groove, which may now be done without any risk of the knife slipping out. The knife may then be either withdrawn along the director, or the parts further dilated, according to the circumstances adverted to. Having delivered his knife to the assistant, the operator takes the staff in his right hand, and passing the fore finger of his left along the director through the opening in the prostate, withdraws the director, and exchanging it for the forceps, passes the latter upon his finger into the cavity of the bladder.

"In extracting the calculus, should the aperture in the prostate

prove too small, and a great degree of violence be required to make it pass through the opening, it is advisable always to dilate with the knife, rather than expose the patient to the inevitable danger consequent upon laceration."

Operation above the Pubes, or the High operation.—This is the operation which it is supposed was performed by Colot, an Italian, in 1474, on a freebooter of Moudon, in France, who was condemned to die for a robbery which he had committed; but it being discovered that he was afflicted with the stone, Louis the Eleventh, at the request of some French surgeons, gave Colot permission, by way of experiment, to try the operation upon him, in the hope that it would be serviceable to others who suffered from the disease. It is related that the operation was performed in the church of St. Severin, at Paris, with such success that the patient was cured by the end of fifteen days, when he received a free pardon.

Pierre Franco is the first who wrote any account of the operation. He performed it in 1650, at Lausanne, on a child two years old; he had begun operating by the perinæum, but finding the stone too large to be extracted in that direction, and seeing that the distended bladder caused a prominence above the pubes, he performed the high operation, and the child got well. In the last century it was frequently performed by Douglass and Cheselden, in England, and by Winslow, and Frere Comé, in France. It is, however, discontinued in modern practice.

The Posterior, or Recto-Vesical operation.—The operation of cutting into the bladder through the rectum, for the purpose of removing a calculus, seems first to have been proposed by a surgeon of Bale, in Switzerland, nearly two hundred years ago.

Within these few years this method of operating has again been brought into notice by Professor Vacca, of Pisa, who affirms that it exposes the existence of patients to less hazard than any of the other operations generally had recourse to.

In Paris, the operation has been performed by several surgeons of eminence, among whom are Messieurs Dupuytren and Sanson; the latter gentleman is a most strenuous advocate for this method of operating, which he executes in the following manner:

A grooved staff being passed into the urethra, the patient secured, and placed on a table, as in the lateral operation; an assistant standing at the patient's left side, takes hold of the staff, which he holds exactly vertical. The operator now passes the index finger of his left hand into the rectum, in the supine position, and conveys along it the flat side of a common bistoury, then having turned the sharp edge upwards, he draws it towards himself, and divides the lower part of the rectum and the sphincter of the anus, in the direction of the raphe of the perineum.

The under surface of the prostate gland can now be felt, by introducing the index finger of the left hand, and beyond it the grooved staff, in the inferior portion of the bladder, which is not covered by the peritoneum.

The operator again introduces the bistoury as before, directing its point guided by the index finger, into the groove of the staff, and then cutting outwards, in the mesial direction, he makes an incision of about an inch in length, when the flow of urine proves the opening of the bladder. The forceps being passed along the finger into the bladder, the stone is to be extracted as in other operations.

The parts cut by operating in this manner, are the lower part of the rectum, the sphincter ani for almost its whole depth, a small portion of the posterior part of the prostate gland, and the lower part of the bladder.

Dr. Bushe, in an article (in the 1st volume of his Bulletin, p. 17,) on the *Bilateral operation* describes his mode of operating with the double cystotome, an instrument with a double blade and a beak to fit into the tube of the director, as follows :

“A full sized staff being introduced, I make a curvilinear incision over the anus, in every respect corresponding to that practised by Dupuytren ; then, with a few strokes of the knife, I gain the back part of the bulb ; now holding this upwards with my left hand, I carry the knife between it and the rectum, and prolong the division of the fat, cellular tissue, and muscles of the right side, to the same depth as on the left. Having proceeded so far, I direct the assistant to carry the convex part of the staff fully into the wound, and then, with my fore finger, I conduct the scalpel into the groove of the staff, and divide the membranous portion of the urethra longitudinally for half an inch. This being effected, I introduce the director into the groove of the staff, and taking the latter from the assistant in my left hand, I lower its handle, and push the director forward at the same moment, until it is lodged in the bladder ; now holding it firmly into the arch of the pubis, I take the double cystotome, introduce its beak into the groove of the staff, and project it steadily into the bladder. It is then withdrawn in the same direction as it entered, and the finger is conducted by the staff into the bladder. If the stone be of a moderate size, I extract it, practising previously a slight dilation, if necessary : but if I find that it is very large, I introduce the curved knife, and dilate one or both sides of the wound to the desired extent.

The operation on the female.—In the rare cases in which it is found requisite to perform the operation of lithotomy on the female, it is generally done in the following way.

The patient being securely bound, a straight conductor or staff is passed by the urethra into the bladder, with its groove directed obliquely

downwards and outwards towards the patient's left side, the back, or convex part, being pressed upwards in an opposite direction, in order to enlarge the calibre of the urethra. The operator, holding the staff with his left hand, passes a probe-pointed bistoury along its groove, which cuts through the urethra and neck of the bladder in the first named direction. He then withdraws the instruments and introduces his left index finger to feel for the stone, which having found, he passes the forceps, his finger serving as a director, and extracts as before.

LITMUS, or *Archil*.—A lichen or moss of the class cryptogamia, and order algæ, the production of the Azores and Canary Islands, and of a blue or violet colour. The watery infusion or paper moistened therewith, is of the utmost value to the chemical and medical jurist in detecting the presence of an acid in any fluid.

LIVER, diseases of.—This important organ is subject to a variety of diseases, of which the most conspicuous is inflammation, either considered separately, or as inducing affection bearing specific characters.

Inflammation of the Liver.—*Hepatitis*.—This disease is described under two varieties, *acute* and *chronic* inflammation.

The *acute* form commences with the ordinary symptoms of visceral inflammation, and may usually be referred, in its ordinary remote causes, to suddenly suppressed perspiration, especially from currents of cold and damp air, or to intemperance. It is more common in the male sex, and is rarely met with under the adult age. It has been supposed by Dr. Saunders that acute hepatitis is owing to an inflammatory state of the hepatic artery, and the chronic to a like condition of the vena portæ. Winslow regarded both as indicative of an inflammatory state of the ramifications of the porta, while Cullen considered the hepatic artery to be alone concerned in the production of the disease, and limited the seat of inflammation to its extremities.

When the inflammation originates in the membranes, the pain is exceedingly acute, the fever severe, the pulse frequent, strong, and hard, and the urine generally high coloured. There is often a distressing cough, which is accounted for from the vicinity of the diaphragm, and the sympathy of that organ with the liver; where the substance of the liver is primarily affected, the pain and fever are less acute at first, but increase with the disease as it extends to the membranes, when the pain darts to the right shoulder, and sometimes affects the throat and clavicular region. The skin occasionally assumes a yellow hue from a regurgitation of the bile, and an extreme tension in the seat of the liver is frequently the source of much annoyance.

In those cases where the membranes of the liver are not affected, the inflammation usually subsides by resolution; but when seated in the parenchyma, tends to suppuration, and should the convex side of the

liver be affected, points externally, and finally opens on the surface, the cough and difficulty of breathing being exasperated during this process. Should the abscess break internally, it generally proves fatal from the accompanying hectic, although, sometimes, its contents pass into the hepatic duct, and are carried off by the bowels, when the patient has a fair chance of recovery. There are, likewise, numerous instances of an abscess having communicated with the stomach and intestines, or with the lungs, and in like manner the pus has occasionally formed an empyema in the thorax. In the East and West Indies, gangrene very soon succeeds to inflammation of this organ, the liver rapidly increasing in bulk; diarrhœa is also a frequent symptom in these situations.

Treatment.—The early practice of venesection is urgently demanded in this disease, followed by the application of leeches or the cupping-glasses to the hypochondrium. Free purging with calomel and epsom salts should precede the regular introduction of mercury into the system, which may be effected through the stomach, by inunction, or both. Although various opinions have been started as to the advantage or impropriety of mercurial treatment in hepatitis, there can be little doubt of its efficacy. In warm climates but slight effect has been produced on the disease until salivation was fairly established, but in temperate countries it will sometimes yield when the mouth is simply affected. The use of large blisters over the whole region of the liver, is very questionable; fomentations and the warm bath will often do more in checking the severity of symptoms than such a practice, attended as it is, with so much pain and irritation. To the above treatment, diaphoretics may be added, particularly those of the antimonial class; where we have reason to believe that suppuration has taken place, the mineral acids and bark (or quinine) must be given freely, the diet increased in nutritive quality, and the strength supported by every means within the ability of the sufferer. When the abscess is likely to burst externally, it should be encouraged by emollient poultices, and opened in a depending situation as early as possible.

Chronic Inflammation of the Liver is usually induced by excess, not only in eating and drinking, but in other kinds of sensuality. It is more frequent in hot than in temperate climates, the organ being in a torpid yet irritable state. The pulse is usually quicker than ordinary, and there is an obtuse pain in the region of the liver, rendered more severe by pressure; a peculiar, though sometimes indistinct oppression is complained of about the right shoulder, and all these symptoms are particularly apparent at a particular hour, and generally towards the afternoon. To these, however, may be added, dyspepsia, and a general wasting of the body; the appetite fails, the stomach is capricious and easily nauseated, the spirits become depressed, the bowels costive, the

evacuations often clay-coloured, and a sallowness appears on the skin. This disease slowly advances to suppuration, or terminates in a schirrhous induration, bearing a comparison to the extent of the preceding inflammation, and often of a sufficient magnitude to be felt by applying the hand to the region of the liver.

Treatment.—The use of mercury is as strongly indicated in this as in the acute variety, although in smaller doses, in order to act with an alterant effect, and excite the secernents into greater activity; in conjunction with mercurials, aromatic bitters may be added, and when they agree with the stomach, the mineral acids. Dr. Pemberton, in his treatise on “the Diseases of the Abdominal Viscera,” speaks favourably of the use of the dandelion, in hepatitis, in doses of half a drachm of the extract, twice a day. In slight cases, the steady use of Plummer’s or the blue pill, for a month or six weeks, has frequently been productive of the greatest benefit, especially where due attention was paid to the diet, and subsequently to the condition of the bowels.

The *induration* of the liver, previously noticed, is often succeeded by the formation of tubercles, which soon becoming continuous, form one large abscess, that rapidly gives rise to a fatal hectic.

A softening of the liver has been noticed by M. Sallemund, in a case of acute hepatitis attended with abscess.

LOBELIA INFLATA.—*Indian Tobacco*, or *Lobelia Syphilitica*.—The systematic names of the blue lobelia, a plant of the class syngenesia, and order monogynia. The name syphilitica was attached to this plant from its efficacy in the cure of syphilis, as experienced by the North American Indians, and to whom its knowledge was confined, until the purchase of it by Sir William Johnson.

Its operation is emetic, anti-spasmodic, and diaphoretic, in doses of from grs: ij to v of the fresh leaves, and of the dried plant, grs: v to ℥i.

LOCHIA—(from *λοχεω*, to bring forth.)—The serous, and generally green coloured discharge that takes place from the uterus and vagina, the three or four first days after delivery.

LOCKED JAW.—See *Tetanus* and *Trismus*.

LUES—(from *λυω*, to dissolve.)—Any peculiar poison or pestilence; thus the venereal disease has been termed lues venerea, the typhus fever, lues neurodes, &c.

LUMBAR ABSCESS.—**Psoas Abscess.**—A chronic collection of matter formed in the cellular substance of the loins, behind the peritoneum, and descending in the course of the psoas muscle. Its formation is not attended with fever, pain, or inflammation; a dull uneasy sensation is felt in the region of the loins, but this is so ambiguous that the nature of the disease is often not suspected, until swelling and fluctuation appear in the groin: it continues without pain or inflammation,

but dilates on coughing, and diminishes when the body is horizontal. It soon passes down under Poupart's ligament and becomes extravasated within the fascia lata. The matter sometimes presents itself at the point where the hip disease shews itself, also near the vertebræ, sometimes near the anus, and even at some part of the abdomen.

In the pure lumbar abscess the seat of the disease is in the spine, and until that can be corrected or subdued, no efforts in relieving the progress of the abscess can be attended with success. It has been presumed by some authors that the causes of these affections are either dependent upon, or influenced by serofula; but as we may frequently witness their occurrence from sprains, blows, or other injuries, as well as from circumstances independently of all serofulous origin, we are correct in describing their causes as uncertain and too often enveloped in obscurity.

Treatment.—It is good practice in a common acute abscess, to abstain from making any opening until the matter be fully formed, but in chronic abscess, from the tendency of the matter to diffuse itself rather than to make its way to the surface, an early opening seems preferable. This was formerly accomplished by some practitioners by a seton; others made a large opening *sine cura*, and allowed the air free ingress, when inflammatory affection of the whole cyst often followed, causing violent constitutional commotion, and frequently death. Mr. Abernethy proposed a novel and safer practice: he opened the tumour with a broad abscess lancet introduced somewhat obliquely so as to allow the escape of the coagula with which the matter is frequently blended. As soon as the matter was evacuated, the wound was closed with lint and adhesive plaster, that it might heal as quickly as possible, and which it usually did without any difficulty. Fresh matter soon formed, which gravitated to the bottom of the sac, leaving its upper part undistended, by which it had an opportunity of contracting and healing. As soon as the matter pointed again, it was evacuated, and the wound healed as before, and this process was repeated as long as any matter formed, until the cyst became obliterated. After the first or second operation the constitutional symptoms grew much milder. As the cyst is an absorbent surface as well as a secreting one, the promotion of absorption should be attempted in conjunction with the plan just detailed. For this purpose we may blister the integuments over the cyst, keeping up a discharge by savine ointment. Issues should be applied in the vicinity of the spine, especially should that be diseased also. Electricity may also be useful. This treatment may likewise be adopted prior to the appearance of matter externally, whenever the disease can be ascertained to exist; for by it many cases have been arrested and even removed without discharging matter, from its entire absorption. In the constitutional treatment, we are in some degree to be governed by the state of the system;

if it seem declining in strength, it must be supported by nutritious food, wine, bark, &c. If there appear a scrofulous diathesis, the treatment must be regulated accordingly. Consult Abernethy's *Surgical Essays*, Part 1st and 2d; Crowther on White Swelling; Lake's *Surgery*, &c.

LUMBRICUS.—The long round worm found occasionally in the human intestinal canal.—See *Worm*.

LUNGS, diseases of.—These organs are subject to a variety of diseases, the principal of which are *pneumonia* or inflammation, and *phthisis pulmonalis*. Under these two heads may be included nearly all the rest, inasmuch as they are generally commenced by the first, and concluded, when fatal in their result, by the latter.

Pathology of Pneumonia.—Pneumonia may be either acute or chronic. Of acute pneumonia, M. Lænnec describes three degrees; first, that of sanguineous infiltration; secondly, that of hepatization; and thirdly, that of purulent infiltration.

Acute Pneumonia.—In the first stage, the lung is heavier than in the natural state; exteriorly, it is of a livid or violet colour, and its solidity is greatly increased. It still, however, crepitates under the hand, but in a diminished degree, feeling as if it were engorged with some liquid. When cut, its tissue appears of a livid red colour, and completely infiltrated with a frothy and more or less sanguinolent serosity, which flows abundantly from the surface of the incisions. We can still, however, distinguish the areolar and somewhat spongy texture of the lung. The passage from this to the second stage, is marked by the diminished consistence of the pulmonary tissue; it becomes very friable, while the exudation is less abundant, and not so frothy as in the first stage. In this state the lung may be well compared to a piece of spleen.

When the lung arrives at the second degree of inflammation, or the state of hepatization, the pulmonary tissue no longer crepitates under the hand, nor does it float in water; it resembles a portion of liver gorged with blood. Exteriorly, its colour is not so livid as in the first degree, but interiorly, it is of a more or less deep red colour, and on its surface, the spots formed by the black pulmonary matter, the ramifications of the bronchial tubes, and the thin cellular divisions which traverse the pulmonary tissue, are well marked. This is the *ramollissement rouge* of Andral.

In the third degree, the pulmonary tissue, still preserving the granular appearance which has been described before, assumes a pale yellow or greyish colour, constituting what is called the grey *hepatization* of the lung, or "*ramollissement gris*" of Andral.

When a cavity is formed, which rarely occurs, its parietes, according to M. Lænnec, consist of pulmonary tissue infiltrated with pus, and in

a state of softening which diminishes with the distance from the centre of the abscess.

"When the inflammation is chronic," says M. Andral, "the lung may be affected in the preceding manner, but it also presents two other states which are not observed in the acute inflammation of this organ, and in which the pulmonary tissue, instead of being softened and imbued with fluid, is hard and dry. It sometimes presents a pale red colour, but most commonly has a greyish tint.

"As we have admitted the existence of a red and a grey softening in the acute inflammation, so in the chronic, we must also admit of a red and grey *induration* of the lung."

The three stages of pneumonia are frequently met with in the same lung. Sometimes one of the lungs is inflamed to the third degree, while the other presents the first and second degrees in different portions. When the three degrees are met with in the same lung, they are either divided by well marked lines, or pass into one another by insensible shades. The passage from the one degree to the other, as from the first to the second, is characterized by a red tissue from which a great quantity of frothy and sanguinolent fluid exudes; it is still, however, a little crepitating under the hand; and we can distinguish in it, non-crepitating parts of a redder colour and more firm consistence, whose surfaces when cut, are of a granulated appearance; they are in fact portions of the lung in a commencing state of hepatization.

The transition from the second to the third stage is characterized by the appearance of yellow uncircumscribed spots, passing by insensible degrees into the hepatized portion of the lung.

Pneumonia seldom commences in the superior part of the lung; when it does so, the progress of inflammation is said to be more rapid than when the inferior parts are first affected. It is in the inferior parts that inflammation generally commences. When we observe a lung in which the three stages occur, we always find the most advanced one in the lower lobes.

"Pneumonia," says M. Lænnec, "even when it has arrived at the third degree, or even when purulent infiltration has taken place, may yet terminate by absorption of the pus, and without disorganization of the pulmonary tissue. If, in this case, death happen during convalescence, (which frequently occurs in old patients,) the pulmonary tissue no longer presents the hepatic hardness, nor even the degree of density which pneumonia in the first degree, or œdema of the lung produces; it crepitates slightly under the hand; it sometimes floats in water; when cut, it allows a certain quantity of very liquid pus to flow out; the surface of the incisions is of a dirty yellowish or slightly green colour, which forms a strong contrast with the remaining healthy portions of the

pulmonary organ. When resolution is far advanced, this tint alone remains. The tissue of the lung is moister than in the state of health, but no perceptible quantity of pus flows from it."

Pneumonia may be either single or double ; *single*, when occurring in one lung only ; *double*, when both are affected. In the one lung it may be general or partial.

M. Andral mentions, that of one hundred and fifty-one cases of pneumonia admitted into the hospital of La Charité, in ninety, the right lung was affected ; in thirty-eight, the left lung ; seventeen were cases of double pneumonia, and the seat of six others was not determined.

Of fifty-nine well described cases in the works of Morgagni, Stall, De Haen, Pinel, and Broussais, thirty-one were of the right lung, twenty of the left, and eight of both lungs at once. Thus, on the whole, of two hundred and ten cases of pneumonia, one hundred and twenty-one were of the right side, fifty-eight of the left ; twenty-five were double, and the seat of six was not determined.

Of eighty-eight cases under the care of M. Andral, forty-seven were of the inferior lobe, thirty of the superior, and in eleven the whole lung was inflamed at once.

Chronic pneumonia is considered as being much rarer in its occurrence than the acute species. Of one hundred and twelve cases of pneumonia, M. Andral considered one only as chronic ; it alone continued for more than thirty days. There is a case of well marked chronic pneumonia, related by M. Bayle, in his *Recherches sur la Phthisie Pulmonaire*, obs. 46, which was mistaken for phthisis pulmonalis ; but this was before the discovery of mediate auscultation.

The common causes of pneumonia are exposure to cold, suddenly suppressed perspiration, and too great exertion of the organs of respiration in singing, loud and long talking, and the practice on wind instruments. In some individuals, a peculiar liability to this disease exists, and is called into action by the slightest variance from accustomed habits, and it is in such habits that pneumonia too frequently lays the foundation of phthisis pulmonalis.

The *symptoms* of this disease are very clearly marked ; they usually commence with rigors, and a slight uneasiness in respiration, particularly in drawing a deep breath ; a sense of weight and oppression over the whole thorax is complained of, together with pain in some particular part of different degrees, both in extent and intensity. As the disease advances, the symptoms become more distressing, particularly the cough and dyspnoea ; an expectoration succeeds of a transparent, viscid, and sanguinolent character, the pain is aggravated by incessant efforts to inspire more freely, the pulse is strong and quick, the skin hot

and moist, the tongue white, and the bowels in general costive. On percussion the sound is dull, particularly in the situation to which the pain is referred, and in the degree to which the engorgement or hepatization of the lung has reached. An examination by the stethoscopy will detect a crepitating rale, with or without the respiratory murmur according to the extent and progress of the attack. This crepitating rale is in fact the surest pathognomic sign that can be furnished in announcing the condition of the lung in pneumonia. So long as the respiratory murmur is heard with the rale, we may be certain that the sanguineous infiltration has not extended to the whole of the lung; where the murmur is not heard, but the rale is very strong, the lung is only engorged. If, after a time, the crepitating rale becomes more feeble, without a return of the respiratory murmur, it is evident that the disease is passing to the degree of hepatization, and if not arrested, the rale becomes more indistinct, although rarely quite lost, until the whole organ is rendered impermeable in the condition of the third stage of pneumonia. Where a fatal result is indicated, bronchophonia, and the tracheal respiration (see auscultation,) quickly succeed.

Treatment.—If there are any established principles in medicine, the propriety of venesection in pneumonia is one. It must be practised in the earliest stage of the disease, as soon as dyspnœa, pain, and loss of sound in the chest, indicate its existence. The abstraction of blood should be made from a large orifice, especially at the first time, and continued until a large quantity is drawn, unless the attack is very slight, or the patient too young, old, or feeble, to bear much evacuation. The lancet should be frequently resorted to, as long as the pulse continues full or quick, the sputa streaked with blood, the natural sound of the thorax imperfect, the *rale crépitant* audible, and above all, as long as there remains the least embarrassment of respiration. The local pain may generally be removed by the application of leeches, followed by cupping glasses; and if the febrile and inflammatory symptoms are slight, by a blister.

When the inflammation and fever run high, blood-letting may be repeated even four, five, or six times, but there is seldom occasion to carry it to this extent, especially as the treatment directed against the local pain will be sufficient to remove the inflammation, after its first violence has been subdued. It is almost superfluous to remark, that the stethoscope should be employed daily, to ascertain the condition of the lungs, and the effect of the remedies employed.

Neither the flow of the catamenia or of the lochia, nor old age, nor infancy, should deter us from the general abstraction of blood; but if the attack be slight, any critical discharge, as from the rectum, or mem-

branch of the nose, attended with an amelioration of the pulmonary symptoms, should modify our treatment.

Whenever there is much fever, venesection is indicated, though little disease should be detected on percussion and auscultation; for the fever may depend on inflammation in a portion of lung not accessible to these modes of investigation, on disease in some other organ, or an excessive irritability of the vascular system, any one of which causes would equally require the employment of antiphlogistic measures. In the last case, a warm bath might be very beneficial, especially if the dyspnoea be slight, and the sputa contain no blood: under its use the skin becomes soft, perspiration is established, and the disease often shortened. Where some irritation of the abdominal viscera is the cause of the febrile reaction, bathing is equally beneficial.*

Under certain circumstances, we must be particularly cautious in the employment of the lancet; for instance, when the pulse is very small and feeble, or the debility and exhaustion of the patient great; when bleeding has previously failed, or when it is evident that suppuration, especially if from vomicae, has commenced.

Whenever the pulse is small, we should take care to examine the heart, to ascertain whether this arises from actual debility, or from mere oppression of strength; for the heart's action may be full and powerful, while the pulse is scarcely perceptible; in this case it becomes developed, as the blood flows, and after the operation has been once or twice performed, the pulse is large and soft. From this we may learn never to decide against the abstraction of blood, merely from the character of the pulsations at the radial artery; a similar rule is applicable to other appearances of debility, which requires to be distinguished from the oppression of strength and stupor always attending intense inflammation.

The repeated application of blisters to the chest and inferior extremities, is generally indispensable in cases of this kind. When the first abstraction of blood fails to assist, and especially if it has seemed even to impede the progress of recovery, it would be openly opposing nature to have recourse to it a second time: under these circumstances, it is better to try an altogether different plan of treatment; selecting, according to the state of the symptoms, one or other of those which we are about to describe.

The use of tartarized antimony in pneumonia, both as an emetic and a nauseant, has been much extolled, and particularly by Lænnec and

* When bathing is prescribed in pneumonia, the water should reach only to the epigastrium, the upper part of the body being carefully defended from the cold air, and kept warm; and the patient must not remain in more than half an hour.

the French physicians. As an emetic, this remedy frequently accomplishes a beneficial transfer of action, particularly when its action is persevered in for an hour or two when the condition of the patient does not forbid the practice. It is, however, as a nauseant and expectorant that it is generally given. After venesection, Lannec was accustomed to administer one grain every two hours, repeating the dose six times. If the symptoms were not urgent, the patient was then left quiet for six or eight hours, but when much distress prevailed, the medicine was continued, and occasionally increased as far as two grains and a half every hour. The usual effects of this remedy are vomiting, after the three or four first doses, the bowels being at the same time vigorously acted upon; its sensible action then ceases, and in favourable cases, expectoration and perspiration are gradually established. The above treatment, so far as the use of tartarized antimony is concerned, will be found, in the majority of cases, sufficient, without resorting to the enormous doses as prescribed by some of the Italian and French physicians.

Opium and its preparations are rarely admissible in pneumonia, and although they have frequently been added to gum ammoniac and squills with presumed benefit, the praise may rather be attributed to the medicines with which it was associated. The natural cure of pneumonia may, perhaps, be regarded as expectoration, and this is best accomplished by the steady use of tartarized antimony. The gentle laxative medicines and clysters, are in all cases preferable to the drastic purgatives. Refrigerants are useful, particularly nitre combined with the citrate of potass, and in addition to these, a diaphoretic, formed by the camphor mixture and acetate of ammonia, may occasionally be administered.

A malignant Peripneumony sometimes occurs with the characters of an epidemic, and terminating in typhoid symptoms; it may in point of fact, be described as a synochus or typhus, occurring in such situations, at such seasons of the year, or in such a temperature of the atmosphere, as have a tendency to excite inflammation of the lungs.

The *symptoms* are those already described, with a great addition of sensorial debility, and consequently an increased difficulty of respiration.

The *treatment* will resemble that demanded in typhus.

A spurious or bastard Peripneumony has been described by nosologists, named in particular by Sydenham, *peripneumonia notha*, characterized by great secretion and expectoration, and allied more to a severe catarrhal affection, than to an inflammation of the lungs. When not existing in individuals of advanced life, or broken down constitutions, it is easily relieved by local stimulants, such as squills, gum ammoniac, and

the balsams, by which the lungs are excited, to throw off the burthen of mucus wherewith they are oppressed. Blisters may likewise be found serviceable, and the stage of convalescence afterwards forwarded by a cautious use of tonics and a light and nourishing diet.

In neglected cases, hydro-thorax is not an uncommon sequel to this disease.

Phthisis.—It was long supposed that the cavities met with in the lungs were in every case the consequence of suppurative inflammation of the pulmonary tissue, but the labours of M. Bayle have proved, that in a vast majority of the cases where excavations have been found in the lungs, they have originated from the processes of softening and evacuation, which a peculiar species of productions, named *tubercles*, undergo.

M. Lænnec has stated, that he thinks the existence of tubercles in the lung to be the cause, and to constitute the true anatomical character of phthisis.

A tuberculous excavation is essentially different from an ulcer, inasmuch as this last is understood to corrode the tissue in which it is formed, while the former arises from the spontaneous destruction of an accidental production, which has separated, and pressed the pulmonary tissue, but has not destroyed it, or increased at its expense.

Tubercles are first developed under the form of small semi-transparent grains, of a light grayish colour, and from the size of a millet to that of a hemp-seed; in this state they are called *miliary tubercles*. These grains increase, become yellow and opaque, at first in the centre, and afterwards through their whole extent. Those nearest to one another unite and form masses of different sizes, which are of a pale yellow colour, opaque, and of a density similar to that of the most firm cheese; they are then named *crude tubercles*.

It is generally about this stage of the tubercular developement, that the surrounding pulmonary tissue, until then healthy, becomes indurated, gray, and semi-transparent, from a new production of tuberculous matter in the first degree, which is infiltrated into its substance.

In whatever manner crude tubercles are formed, they terminate sooner or later by softening, and becoming liquid. This process commences towards the centre of each mass, which, from day to day, becomes softer and more humid, until the change reaches the circumference, and becomes complete.

In this state the tuberculous matter may present itself under two different forms. Sometimes it resembles a thick inodorous pus, more yellow than the crude tubercle; or it occurs separated into two parts, one very liquid, and more or less transparent and colourless, at least when it is not tinged with blood; the other opaque, and of the consist-

once of soft friable cheese. In this last state, which is frequently met with in scrofulous subjects, it often bears a strong resemblance to whey, in which small fragments of curd are floating.

When the tuberculous matter is completely softened, it opens for itself a passage into some of the neighbouring bronchial tubes.

It is extremely rare to find but one excavation in a lung thus affected. The cavities are most frequently surrounded by crude and miliary tubercles, which, softening successively, open into the principal excavation, and form anfractuosities which are continued by degrees to the surface of the lung.

Bands of condensed pulmonary tissue, generally infiltrated with tuberculous matter, often cross these evacuations; they are thinnest at their middle, and bear some resemblance to the columnæ carneæ of the heart.

In a lung, presenting tubercles in different stages of progress, we sometimes find small portions of pulmonary tissue infiltrated with a gelatinous matter, humid rather than liquid, transparent, semi-concrete, slightly gray, or sanguinolent. We can no longer distinguish the air cells in the parts thus infiltrated, but we may perceive a multitude of very minute, opaque, yellowish-white points, which are evidently formed by tuberculous matter in the second degree. The other mode of anomalous tubercular developement appears to occur without the precursory formation of the gray matter; at least, if this does take place, the passage of the first degree to the second is so rapid that it has not been perceived.

At the commencement of phthisis, when some lesion of the pulmonary organs, more important than simple catarrh, is indicated by cough with frequent hæmoptysis, emaciation, and irregular febrile attacks, the sputa are yet without character.

In most individuals the cough is dry, while in others it is accompanied by a purely catarrhal expectoration, which, although remaining for a length of time, still preserves the character of that in acute catarrh. This circumstance is not to be overlooked, and should cause the physician to suspect the existence of tubercles. Nevertheless, after this dubious catarrh has remained for a long time, if the sputa are examined daily, small yellowish-white grains are observed in the expectorated matter, which have a tolerable consistence, and vary from the size of a pin's head to that of a pea. They remain separate, and fall to the bottom of the vessel; when broken they exhale a very fœtid odour, which has been regarded by Baglivi as pathognomic of pulmonary consumption.

We must not confound these granular bodies with those secreted by

the pharyngeal glands, which are exceedingly viscid and tenacious, presenting a strong contrast to the friable tubercular debris.

A better method of distinguishing these substances is by heating them on paper. The secretion of the tonsils and neighbouring glands is sebaceous, and therefore greases the paper. This is not the case with the tubercular matter.

We sometimes meet with patients who having long laboured under a dry cough, with all the other symptoms indicative of the existence of crude tubercles in the lung, suddenly expectorate a large quantity of puriform sputa, coming from a tuberculous excavation, which had opened into one of the bronchial tubes. This circumstance may prove fatal, but Bonet and Lannec relate two cases where it took place, and yet the patients recovered their health.

During the latter periods of the disease, there is secreted from the sides of the tuberculous excavations a liquid of a dirty ash-gray, or sometimes a reddish colour, which last tinge appears to arise from the mixture of a certain quantity of blood. This liquid, which has a great analogy to the sanious pus of old and ill-conditioned ulcers, is frequently mixed with small grains of decomposed tuberculous matter.

When the excavations are found containing the above fluid, it is generally the case that its existence was revealed by the characters of the expectoration; in which latter, this liquid occurs at first in small quantity, but gradually increasing, at length almost entirely constitutes it. It is then nearly a homogeneous pus, sometimes fœtid, sometimes inodorous, and containing grains of softened tuberculous matter scattered through it.

In the latter periods of the disease, when the sputa do not take on the puriform aspect, but still continue divided, it frequently happens that twenty-four or forty-eight hours before death, the character of the expectoration is altogether changed, the serosity disappears, and the sputa form a thick greyish mass, strongly adherent to the bottom of the vessel.

In other cases, expectoration is altogether suppressed a short time before death; the symptoms are then aggravated, and the strength rapidly diminishes. This sudden suppression may be justly looked upon as one of the most fatal symptoms. As in pneumonia, it may arise from two causes: first, from the inability of the patient to expectorate, the sputa collect in the larynx and trachea, and he sinks in a state of asphyxia. In the second case, the expectoration is suddenly suppressed, without any tracheal rale being heard, while at the same time the mucous rale, which indicates the existence of a cavity filled with liquid under the point where it occurs, suddenly ceases to be heard in this situation, although a short time before it had been com-

pletely evident. We must then admit, that the liquid filling the cavity was rapidly absorbed. In some cases, where the patients ceased to expectorate immediately before death, we have found vast excavations entirely empty.

The attention of physicians has been for a long time directed to the odour of phthisical sputa, which, in most patients, have a faint and nauseous smell. In these individuals the disease may go through its different stages, and death supervene, without the odour of the sputa becoming more disagreeable. In other cases, the expectoration, although long inodorous, will, in a few days before death, acquire an insupportable fœtor, which is also perceived in the matter of the cavities.

The taste of the sputa, as perceived by the patient, has attracted as much attention as the odour. Most authors have advanced, that those patients whose sputa are insipid, sink less rapidly into a state of marasmus.

Assuming, therefore, that no case can be considered as one of true phthisis, that is not accompanied by tubercles, it appears probable that in some constitutions a peculiar tubercular diathesis prevails; whether the tubercular formation gives rise, first to pneumonia and then to complete disorganization of the lung, or that pneumonia is the primary agent in the creation, or at least in the developement of the tubercles, is still a disputed question. In some instances, these two causes may co-exist, but in a reference to the arguments that have been employed on this subject, we may admit that while inflammation may sometimes accelerate the progress of tubercles, they are originally independent of it; this assumption is further corroborated by the fact, that we rarely find tubercles in the lungs of those who have died under an attack of pneumonia.

Phthisis is a disease of alarming frequency and fatality; according to Dr. Young's estimate in his *Treatise on Consumptive Diseases*, it carries off prematurely, one fourth of the inhabitants of Europe, and from our experience of its effects on the Western Hemisphere, we can scarcely describe it as less destructive. Lænnec observes that it is the general opinion that phthisis, like cancer, is incurable; and he agrees with the remark, so far as it applies to the early stages of tubercular formation, for it is the very nature of these substances to increase in size, and become soft; but he is convinced, from a great number of facts, that the disease is curable, although rarely, in the later stages, that is after the softening of the tubercles, and the formation of an ulcerous excavation. It is right, however, to add that this opinion is not supported by the profession at large, and that the cicatrization of the lungs which has been remarked both by Lænnec and Andral, are supposed to be owing to other causes, that the healing of an excavated

ulcer. However, these points may be decided, it is certain that the disease in question may frequently be retarded, and that individuals may live under its visitation for a number of years.

The ordinary period of consumptive attack, is from the age of eighteen to that of thirty-five, the mean term of its proving fatal having been fixed at about the age of thirty.

The *causes* of phthisis may be described as two in number, the predisposing, and those that summon the predisposing cause into being, or act altogether in its absence. Of the first variety, it is sufficient to observe that it is associated with the peculiarity of formation of the individual: a long neck, narrow chest, slender form, and high shoulders, generally accompanied with a fair and ruddy complexion, light hair and blue eyes are usually observed, to which may be sometimes added, the characteristics of doctors Darwin and Withering, an unusual magnitude of the pupil, and long and dark eye-lashes. It has further been observed that the teeth are peculiarly clear, and the eyes unnaturally bright.

The exciting or occasional causes are numerous; such as mechanical irritation of the lungs from severe coughing in an attempt to expel any hard substance that has been swallowed; the inhalation of the dust of deleterious substances; an exposure to sudden changes of temperature; over exertion in speaking, singing, or playing on wind instruments; the irritation of various diseases, as worms, scrofula, syphilis or measles; the sudden suppression of a cutaneous eruption or accustomed evacuation; the too rapid growth of the body, or the depressing passions of the mind.

The *symptoms* are exceedingly insidious. The patient is sensible of a peculiar and unusual languor, and breathes with less freedom and shorter than ordinary; he coughs occasionally, but without expectoration, and is only sensible of pain in some particular part of the chest, upon forcing a deep inspiration. These symptoms gradually increase; the pulse, at length, quickens towards evening, a perspiration takes place during the night, and the morning is ushered in with a paroxysm of coughing and a sense of feebleness and languor. This may be said to form the first stage of the disease. The second is rapidly established, by the cough increasing in frequency and changing in its character and accompaniment, a purulent mucus varying from a watery whey-like sanies to a sputum of nearly genuine pus. The pain attended with a weight in the chest is now nearly constant, hectic assumes its proper and full character, the patient can only lie with ease on the side affected, and the strength fails rapidly, while the frame becomes daily more attenuated.

The third stage is usually of short duration. The voice becomes hoarse and tremulous, the fauces aphthous, and the throat ulcerated; the night sweats increase in degree and a colliquative diarrhœa suc-

ceeds, which soon reduces the sufferer to the extremity of weakness. Dropsy in one of its forms now usually makes its approach in the anasarca of the limbs, the enlargement of the abdomen or the fluctuation of the chest; the perspirations alternate with the diarrhœa, until the scene closes, either by an inability to expectorate the collected mucus when suffocation ensues, or by a gradual and almost imperceptible decay. In some instances a low and languid delirium precedes dissolution, in others, a total imbecility prevails, whilst again we may witness a perfect retention of the faculties to the last, and a full sense of the miseries of the condition.

Treatment.—When the patient is of a robust habit and in the prime of life, the earliest symptoms indicating inflammation, either in the lungs or bronchiæ, must be promptly met by the use of the lancet, repeating the abstraction of blood as it may be necessary even to the third or fourth time; small doses of ipecacuanha or antimonial powder should then be administered with a view to maintain a nausea until the pulse be lowered. The bowels should likewise be thoroughly opened by the neutral salts, and after this, digitalis may be prescribed in carefully regulated doses, to prevent a return of action, on the part of the circulation. Should the cough continue after the abatement of the other symptoms, it may be readily overcome by some slight narcotic, as the extract of hyoscyamus.

In those cases where a consumptive diathesis is apprehended, the greatest reliance must be placed upon a carefully regulated diet, and an abode in such a situation where causes of irritation of any nature can be avoided. It were an endless and certainly an unprofitable task to detail the variety of remedies that have been proposed with the design of conquering the predisposition of phthisis. The last remedy sanctioned by medical authority is iodine, but experience fails in recording the advantages that were anticipated in its use.

A more rational principle of treatment is offered to the practitioner in availing himself of every opportunity to protect the system against attack, and when this can be done without running into an opposite extreme, by stimulating instead of nourishing, his efforts have a chance of proving beneficial. There are numerous instances, where bleeding is out of the question from the delicate and irritable nature of the habit, and here emetics may be administered with great propriety, limiting their action, if possible, to one evacuation from the stomach, but occasionally repeating the dose. This plan in addition to a clearance of the bronchial glands and diminishing the local irritation acts favourably in checking the diarrhœa, and especially where ipecacuanha is the medicine employed.

When the disease is apparent, although in its earliest stage, the use

of the vegetable acids has been found highly serviceable, when used as a daily article of diet ; the acetic or acetous acid may be selected and given three or four times a day in half ounce doses, with an ounce of infusion of cascarilla, and a little syrup ; by this simple remedy, which appears to have been of Moorish authority, the night sweats are frequently diminished, the hæmoptysis restrained, and the bowels rendered costive ; in fact, the malady appears checked, and little more is wanted than the enjoyment of gentle exercise in a favourable climate, a mild and nutritious aliment, and a total freedom from mental or bodily exertion.

The use of acetous acid in incipient phthisis has been attended with far happier results than the direct astringents or bitters ; the system is rarely calm enough for the safe administration of the latter, and Dr. Cullen, in speaking of the use of cinchona, observes, that the hectic paroxysms although they may be stopped for a time by its employment, always return, and with greater violence than before. Upon an abatement of each unfavourable symptom, the sulphate of quinine, in small and repeated doses, and in conjunction with the dilute sulphuric acid, may prove serviceable as a tonic, and especially, aided by the advantages of a well regulated system and a carefully appointed diet.

The food in phthisis should be of the lightest possible description, and confined, or nearly so, to milk and the farinaceous parts of plants. The milk of the ass has long been celebrated in the dietary treatment of consumption, from its containing less caseous matter, and therefore resting more readily on the stomach of the invalid. The Iceland liverwort has likewise been warmly recommended, and where it could not be readily procured, a number of other lichens of similar properties have been proposed as substitutes.

A change of habitation from a variable to a settled climate, where the atmosphere is mild, dry, and equable is also of great importance. It has, however, frequently happened that a change has been proposed at too late a period, when the patient is only removed to die, at a distance from home and its attendant comforts. A great error has been committed in some instances by the physicians of England in transferring their consumptive patients to the south of France and Italy. Montpellier has enjoyed an unmerited reputation in this respect, for it would be difficult to select a situation less adapted to an invalid ; the vicinity of the Pyrenees renders the air cold and piercing, and every way unsuited to the feelings and the necessities of the sufferer. A removal to the West India Islands, perhaps presents, the most favourable prospect of benefit ; the change is not only more decisive, but the voyage will operate to a favourable, and sometimes to a remarkable extent. An attempt has been made by some physicians to improve the secretion

from the lungs, by the inhalation of the fumes of aromatic herbs, or various terebinthinate resins, and particularly in consequence of the recommendation of Sir Alexander Crichton, in his "Observations on the Treatment and Cure of Consumption." The impregnation of the sick chamber with the vapour from heated tar has also been recommended, but the whole of this plan of treatment has but little supported the recommendations of its advocates.

The inhalation of hydrogen gas, intermixed with common air, has perhaps a better pretension to favour; from a pint to a quart of gas diluted with about eight times its measure of common air may be breathed twice a day. It is probable to the greater quantity of hydrogen inhaled, that we may attribute the benefit said to be experienced by a residence in or near cow-houses or slaughter yards, and to which places it was not unusual in England some years ago to send consumptive patients; in such situations the air is impregnated with hydrogen, and it is remarked that butchers and dairy-men, although greatly exposed to the vicissitudes of weather, are rarely attacked by the disease.

There is yet a remarkable circumstance connected with the consideration of the treatment of phthisis. It is a well known fact, that a revulsion has occasionally been produced in this disease, whereby the morbid action has been transferred to a part of less importance, allowing the lungs to return to a healthy condition. A female, for instance, suffering under phthisis, and becoming pregnant, will lose nearly all the signs of the disease until after her delivery, when it will re-commence, and hurry on to a fatal termination. It even happens, that should a second pregnancy ensue in a short space of time, that the disease is again arrested, and instances are recorded where, from a rapid succession of child-bearing, the suspension has been so long protracted that the morbid action has run its course, and eventually subsided.

Sir Gilbert Blane, in his "Observations on the Diseases of Seamen," gives another example of revulsion. In 1780, a violent hurricane occurred at Barbadoes, which produced so great an effect on the air, or on the sick, that several individuals labouring under incipient phthisis, perfectly recovered, and others who were in more advanced stages, were decidedly relieved for a considerable period.

In like manner, we are informed that a sudden cure of some cutaneous eruption, particularly the itch, has apparently acted in the production of phthisis, which has again been removed upon a return of the primary affection. This has given rise to a peculiar plan of treatment, that of establishing a morbid action capable of influencing or superseding the disease of the lungs; for this purpose blisters have been applied and kept open on the back or chest, setons and issues established, and even the actual cautery used in different parts of the body. In the great

majority of cases, however, in which these means have been employed, the morbid irritation is only partially relieved, and when the system has become habituated to the remedial process, it too frequently happens that the fatal disorder recurs, and even with renewed violence.

It only remains to observe on this subject, that phthisis is not sufficiently guarded against in any country. We are in the constant habit of observing the grievous neglect of health in an obedience to fashion, when the frame of delicate females is exposed to a variable atmosphere without a sufficiency of clothing; when the chilliness or dampness of the night air is not provided against, after a continuance for many hours in heated apartments, and when the diet and general regimen is unattended to, by those whose physical weakness demands the most assiduous attention.

An ingenious theory has been started with respect to phthisis, how far the influence of situation has a tendency to its creation. It is said that in those parts of a country where the intermittent fever is constant, consumption is comparatively unknown, and it has in consequence been argued, not indeed that agues provide an exemption from the disease, but that the situation that produced the former, guards against the invasion of the latter. If this supposition be correct, we are provided with a means of staying the progress of phthisis, by an exposure of the patient to the chance of intermittent, which, as a choice of evils, would unquestionably be preferred.

Œdema of the Lung.—Œdema of the lung, whether idiopathic, the sequela of measles, or co-existent with a general dropsy, requires the same treatment as pneumonia. After having applied one or two blisters on each side of the chest, the whole surface of the body is to be rubbed over with the tincture of squill, digitalis, or sulphuric ether, and fumigations with valerian, elder flowers, &c., made use of.

White wine may be recommended, and laxative drinks containing acetate of potash; an emetic, especially of ipecacuanha, should be occasionally prescribed, and expectoration promoted, by inhalations of ether, of tolu, or by the internal use of the acetate of ammonia, oxymel of squill, antimonial powder, &c.; the bowels must be kept open by aloes, rhubarb, jalap, ammoniacum, &c.

The treatment of œdema of the lungs, occurring after an attack of pneumonia, or dependent on organic diseases of the heart and large vessels, must resemble that described under those heads.

Gangrene of the Lungs.—When gangrene of the lungs has attained to a certain extent, it is beyond the resources of art; and consequently our observations apply only to gangrene of a limited portion of the pulmonary tissue.

The treatment of this affection should depend altogether on the gene-

ral condition of the patient: unless this principle be kept in view, we may fall into serious errors.

When gangrene of the lung occurs in a young person of robust constitution, and previously in good health; when it has not arisen from any specific source, and is neither epidemic, nor connected with typhus, but appears simply as the sequela of pneumonia, either through the intensity of the inflammation, or some accidental modification of it, as, for instance, from extreme heat; and when the pulse is full and resisting, the skin warm, the countenance little altered, and, in a word, the general health and strength little impaired, we ought to try the experiment of taking away a little blood. If the blood be firm and florid, with a buffy surface, if the patient feel decidedly better, and his pulse become fuller, the antiphlogistic treatment may be continued. But if, on the contrary, the blood be flabby, of a greenish hue, and fœtid odour, and no improvement in the symptoms have taken place, it will be well to pause before venesection has aggravated the evil, and have recourse to tonics, and the application of counter-irritants to the skin.

Every auxiliary measure ought to be suddenly adopted; a moderately warm atmosphere, impregnated with soothing and balsamic vapours, should be maintained in the chamber of the patient, who should inhale the ether of tolu, drink copiously of demulcents, alternately with a solution of the chloruret of soda, beginning with a very small dose, and gradually increasing it: tonics and expectorants are indicated, and when there is pain in the chest, dry cupping and blistering; hæmoptysis may be counteracted by nitre, combined with conserve of roses. The patient should avoid a horizontal posture as much as possible, especially in very hot weather, as the posterior part of the lungs are in that position surcharged with the circulating fluid, and the disease thereby exasperated.

In proportion as the patient improves, and the sputa lose their gangrenous hue and colour, we may more freely employ the ordinary means for giving tone to the system.

When extreme debility accompanies the symptoms of gangrene in the lung, and still more if it precede them, and they succeed another affection, which has already produced great weakness, or seem to depend on the operation of some hurtful cause, all the stimulating powers of art should be resorted to, as the exhibition of wine, camphor, musk, ether, decoction of senega root, and the seeds of the *Phellandrium Aquaticum*, and the application of sinapisms to the limbs: blisters are apt to occasion gangrene, and are consequently unsafe.

It is always proper to place some solution of the chloruret of soda near the bed of the patient.

Emphysema of the Lung.—This affection has been described by M.

Lænnec as consisting in a dilatation of the air vesicles. Graaf, Ruysch, Bonnet, Morgagni, Van Swieten, and Stork, relate their finding vesicles full of air under the pleura ; but these authors conceived they originated from the rupture of an air cell, and the subsequent infiltration of air into the interlobular cellular tissue. Dr. Baillie, in his *Morbid Anatomy*, has described the three appearances observed in what is commonly called emphysema of the lung ; namely, the increased volume of the organ, the dilatation of the air cells, and the vesicles formed by the extravasation of air under the pleura ; but the term emphysema of the lung has been restricted by M. Lænnec to the dilatation of the air cells alone.

In this last affection, the size of the air cells is much increased ; most of them equal or surpass that of a millet seed, and some even attain the size of a French bean. These last do not often rise above the surface of the lung ; sometimes, however, they form slight eminences on it. So far, the air is confined to its proper receptacles, and the disease consists solely in a morbid distention of the air cells. When this distention is much increased, or takes place in a sudden manner, the air cells are ruptured in different points, and the surrounding cellular tissue of the lung becomes infiltrated with air, causing an affection analogous to subcutaneous emphysema. Vesicles of an irregular form are then found on the surface of the lung, which can be easily displaced by depressing them with the finger. Their size varies from that of a pea to that of a nut, or even an egg. The bronchial ramifications are sometimes dilated in the parts of the lung where emphysema exists.

Emphysema may attack part of one lung, in other cases it occupies the whole of it ; and even both lungs at once may be affected.

Where emphysema exists to a high degree, and occupies the entire of the lung, the latter appears as if forced into the cavity of the thorax ; and when this cavity is opened, in place of collapsing, it, as it were, escapes, and rises in some degree over the edge of the thoracic parietes. If, without removing the lungs, we press them between the fingers, their tissue appears more firm than natural, and it is more difficult to render them flaccid by pressure. If we put an emphysematous lung into a vessel full of water, it sinks much less than a healthy lung, and often remains on the surface of the liquid. Its tissue is also drier than in the state of health. When a single lung is affected, it is much more voluminous than the other ; frequently to that degree as to push aside the heart and mediastinum. The cavity of the chest is also evidently dilated on the affected side.

Emphysema of the lung is generally accompanied by the symptoms of catarrh, and the expectoration is therefore very variable in its character ; the cough is sometimes dry, sometimes followed by the expulsion

of a grayish, transparent, and more or less viscid fluid. At other times the sputa are thick and opaque.

In emphysema of the lung, we sometimes meet with an absence of the respiratory murmur, (but this is far from being a constant symptom,) and upon causing the patient to make a deep inspiration, a hissing rale, (see *auscultation*,) which accompanied by the clear sound produced on percussion is, perhaps, the true pathognomonic sign of emphysema.

Asthma is more commonly a disease of the later than of the early period of life, although no age is exempt from its attack. There frequently appears an hereditary tendency to this disease, as instances are recorded of the members of a family for distinct generations suffering therefrom; in such individuals the cause suggested by Lænnec operates more forcibly than in others, that is, a dry catarrh producing an emphysema of the lungs, or a preternatural dilatation of the air cells. The disease, in fact, may be structural, as well as functional, and follow the slight catarrh, which in healthy individuals is relieved and carried off by expectoration. In some cases, asthma is dependant upon other causes, for instance, the mucous glands of the bronchiæ become relaxed, an habitual excess of secretion ensues, and dyspnœa is the consequence, from the overloaded state of the air cells and bronchial vessels. A spasmodic stricture of these vessels may likewise occasion asthma, a surmise strengthened by the researches of Reisseissen, and the observations of Lænnec, and from which all the acute symptoms of the affection are satisfactorily accounted for.

Asthma may likewise exist merely as a symptom of some other disease, or of a morbid state of some remote organ, as the heart, or the stomach.

It is a very rare circumstance for asthma to prove fatal under a paroxysm, however extreme the sufferings may be; indeed, we frequently witness the life of an asthmatic patient prolonged to an unusual extent. An attack is usually preceded by languor and head-ache, a sense of heaviness over the eyes, nausea, and anxiety in the præcordia. Dr. Bree, (in his *Inquiry into Disordered Respiration*,) who suffered acutely from this disease, thus describes the immediate symptoms as the evening draws in, the middle of the night being the time generally chosen for attack: "The sense of weariness and heaviness over the eyes becomes more oppressive, the patient is very sleepy; frequently there is a tingling and heat in the ears, neck, and breast, and a motion to expel the contents of the bowels is attempted, with some violence and great uneasiness of the abdominal muscles. The sufferer generally wakes suddenly, and feels a most distressing sense of tightness about the chest; the anxiety is inexpressible, and he labours for breath as though each

moment would be his last. He cannot maintain the recumbent position, his extremities become cold, the heart palpitates, the pulse is sometimes quickened, but usually weak, irregular, and intermitting; the abdomen is distended with wind, and eructations take place; the stomach is nauseated, and sometimes rejects a frothy and yellowish fluid; the eyes are prominent, the face livid, and the alvine canal, which was before constipated, now parts with a loose stool." In many instances there is a constant effort to throw off a little frothy mucus, and when this is successful, the fit will subside; a thick viscid matter is sometimes also discharged, and to the great relief of the asthmatic. This fit may last until the morning, when it abates, leaving the patient the whole of that day in a state of extreme weakness, and with a degree of constriction of the chest. The tendency to a return lasts for several nights, when the symptoms are the same as those already described.

It is a rare circumstance for this disease to be contented with one attack during life; weeks, months, and even years may elapse ere a second paroxysm occurs, but the system is ever prepared for a return by the slightest imprudence or carelessness, either of person or diet. The evil, great as it is, does not even end here; the debility induced by frequent attack, lays a foundation for tubercular phthisis, dropsies of the chest or abdomen, aneurisms of the heart, and various other fatal diseases.

Treatment.—Two indications are presented to the physician in the treatment of this disease; the first to diminish the violence of the paroxysm, and the second to protect the system as far as possible from the recurrence of an attack. Bleeding is rarely advisable, although the practitioner may sometimes be obliged to resort to it from the extreme distress and agony of his patient; its repetition is, however, forbidden in the fear of undermining the constitution, and rendering it liable to dropsical effusion. Purging is alike detrimental, and no cathartics should be administered with any other intent than that of keeping the bowels regular; this remark, of course, applies only to idiopathic asthma, for when the disease is evidently dependant upon an overloaded liver or stomach, an active cathartic will relieve the irregular action prevailing in the chest. The excitement of nausea and vomiting has been found very advantageous; the first, by diminishing convulsive action; and the second, by changing its seat, and at the same time determining to the surface. The application of blisters has been found of little avail, at least, so far as relates to the abatement of a paroxysm; they may, however, prevent or shorten a relapse on the ensuing night. The use of coffee, during an attack of asthma, made very strong, and taken without milk or sugar, has been recommended by Sir John

Pringle and other writers, and principally on account of its sedative virtues.

When sedatives and narcotics are employed, they should be combined with diaphoretics, and in such form present, in some cases, a very powerful remedy; the Dover's powder may be preferred, amid a number of preparations that have been recommended, as tending to produce a moisture on the surface, at the time a slightly narcotic effect is produced. The use of opium singly, seldom produces any beneficial change, and only adds to the succeeding debility and exhaustion.

The preparations of musk, camphor, valerian, assafœtida, ammonia, and other anti-spasmodics, may be given with advantage, when the disease is chiefly dependant on a morbid habit, but even then should be combined with diaphoretics. When a pure narcotic is desired, hyoscyamus may be preferred to opium.

Besides these, a trial has been made of many other remedies; prussic acid, nux-vomica, cantharides, and the arsenical solution, but with doubtful success.

Of all the medicines, however, that afford relief in asthma, the preparations of squill may be the most relied on; the expectorating power, either of the powder or the oxymel, is very great after the nausea has been produced, and should it be inclined to affect the bowels, its cathartic property may be restrained by the combination of a small quantity of opium.

The Seneca root, the mineral acids in connection with squill, and the terebinthines have also been recommended, and, in some cases, employed with advantage. Inhalations, which were once so frequently advocated, have of late years fallen into disuse, and perhaps undeservedly so; the oxygen and hydrogen gases have each been proposed for this purpose, and Dr. Beddoes, in particular, in his work "on Diseases of the Chest, &c.," speaks very favourably of the employment of the first named gas.

The insertion of a seton or an issue in the neck or arm has sometimes proved highly serviceable in the treatment of asthma, and retarded the paroxysms for a very extended period.

The regulation of the diet is of the utmost consequence; there are numerous cases recorded where a total abstinence from animal food and fermented liquors has not only checked, but, as it were, removed the disease, especially where the bowels have been sedulously attended to, and the habits and pursuits of the patient restrained from all violent exertion.

LUPULINE.—The active principle of the hop, discovered by Dr. Ives, of New York. Its essential properties reside in a resin, a little volatile oil, and a bitter principle. It may be administered as a sedative

in the form of pills, (of two grains each,) of the tincture, (formed by adding ℥iv of alcohol to ℥i of the powder,) or of a syrup.

LUXATION, (from *luxo*, to put out of joint.)—See *Dislocations*.

MADNESS.—A variety of terms have been adopted to denote this affection, such as mania, insanity, dementia, &c., all of which rather apply to some peculiar character of the disease, than explain its nature. The phrase we have selected unquestionably includes all varieties from the transient fit of passion which overcomes the intellect for a season, to that wretched condition when the mind is prostrated under the effects of melancholy or ungovernable fury, never again to be restored to its healthy temperament.

Mr. Locke and M. Condillac refer madness, in the general sense of the term, to false judgment, which Dr. Battie, on the other hand, characterizes it by false perception, and it would be difficult to say which of these two definitions, taken alone, is the most imperfect. We meet with daily instances of mistaken judgment, and erroneous perception in individuals, whose general conduct must relieve them from all suspicion even of mental incapacity, and hence the term *false* is insufficient, as a definition of madness, when applied either to the judgment or the perception. The faculties, both of judgment and perception, are affected, it is true, but not so much *falsely* as *morbidly*; though they are not always equally affected at one and the same time, for the judgment and the perception may be alternately free, or nearly so, from any delusion; but in almost every instance the memory fails, and the attention is incapable of being fixed, or the imagination is wild and extravagant.

The causes of insanity are agreed to be moral and physical. Every impression on the sensorium, through the external senses, and every passion in excess, may become a moral cause of insanity. Thus all, however opposite, act as exciting causes, and will produce this result: joy and grief, anger and pain, love and hatred, courage and fear, temperance and ebriety, repletion and inanition, application and indolence, may have the same effect. Vices, also, which occasion changes in the physical constitution, act as remote moral causes, and induce mental derangement. All emotions of the mind, it is evident, are capable of disturbing the corporeal functions, and though in themselves moral causes, they become physical in their operation. Hence physical causes grow out of moral causes, and these frequently lead to insanity; not, however, by direct impressions on the organ of the mind, but through the means of those morbid changes in the system which they gradually affect.

The influence of sympathy in the production of insanity, is very extensive, and probably is the most common source of it. Val Helmont revived the ancient opinions respecting the sympathetic actions of dis-

cased viscera on one another, and especially on the functions of the brain. He considered the viscera as the centre of the sensations, whence they radiated on all surrounding parts. Borden, Barthez, Portal, Dumas, Cabanis, and most of the French physiologists, are imbued with the principles of Van Helmont.

Although we know not the causes, nor the mode by which sympathies act, yet we have abundant proof of their operation in originating diseases which reciprocally act on the mind. There is no organ with the morbid actions of which the functions of the brain so frequently sympathize as the liver. As the connection is intimate, so is it reciprocal, for morbid actions of the former equally, and perhaps as frequently, disturb the functions of the latter. In importance, the functions of this organ are only second to those of the brain, as far as regards the operations of health; and, as in the brain, so too in the liver, the circulation of the blood is complex, and very liable to be interrupted by intrinsic causes. Hence the greater facility of disturbing its functions.

All the passions, anger especially, violently affecting the sensorium, act immediately on the liver; and every excess that disturbs the functions of the stomach, easily determines blood in undue proportion to the vena portarum, where, on account of the remoteness of this vessel from the heart, the motion of the blood is always sluggish, and therefore congestion is easily induced. The bile, consequently, is secreted in scanty quantities, the alimentary processes become ineffective, a morbid action of the connecting nerves follow, and the functions of the brain are implicated and disordered. Many facts attest, that blows on the head will create, not simply disordered function, but disorganization of the liver; and *vice versa*, nothing is more common than instances of mental disturbance originating in injuries of this organ, or in secretions of morbid bile, or obstructions of the biliary ducts by gall-stones, spasms, &c.

Diseases of the hepatic system will even originate delirium, furious mania, melancholy, and suicide. The appearances presented upon dissection of maniacs are extremely uncertain; it generally happens that not the slightest departure from a healthy condition of the brain can be observed, and, with the exception of idiots, in whom the greatly receding forehead is evident, but little evidence can be drawn from the appearance of the cranium during life.

The *treatment* of madness depends altogether upon the form assumed by the complaint, and the cause to which it can be traced. Dr. Burrows, in his able work on "Insanity," lays down four rules for the *moral treatment* of the disease, which are very important. First, never to exercise the mind of an insane person in the sense of his delirium. Second, never to openly oppose the morbid ideas, affections, or incli-

nations. Third, which is a consequence of the two preceding, to give rise, by diversity of impressions, to new ideas and feelings; and thus, by exciting fresh moral emotions, revive the dormant faculties. Fourth, never to commit one's self to an insane person by a promise; but if inadvertently a promise be given, faithfully to adhere to it, unless certain that the fulfilment will be attended with worse consequences than its breach.

The medical treatment consists in general and topical abstraction of blood, in refrigeration, narcotics, blistering, artificial eruptions, and issues or setons, bathing, purging, nausea and vomiting; the use of tonics, and a carefully regulated diet, all of which must be adapted to the peculiar case, and employed with the utmost caution and deliberation. See the works of Greding, Esquirol, Pinel, Burrows, Haslam, Crichton and others.

MAGNESIA.—The name of one of the primitive earths, having a metallic base called *magnesium*. It is usually obtained from the carbonate by exposing it to a red heat, has neither taste nor smell, and does not effervesce with acids. It is nearly insoluble in water, has an attraction for lime and alumina, forms triple salts with the alkalies, and is easily distinguished from lime by forming a very soluble compound with sulphuric acid, and by giving out no heat when water is poured upon it. Its specific gravity is 2.3. In medicinal use, it acts as an antacid, and as a laxative when it meets with acid in the stomach: is administered in heart-burn, apthæ, &c., and is frequently combined with ipecacuanha and opium in dysentery: dose $\mathfrak{D}\text{i}$ to $\mathfrak{3}\text{i}$ in water or milk.

Of the salts of this earth, but two are ordinarily employed as remedies—the carbonate and the sulphate.

The Carbonate of Magnesia may be prepared by mixing four parts of the sulphate with three of the carbonate of potass, previously dissolved in twice their weight of warm water. A double decomposition immediately takes place, and carbonate of magnesia is precipitated: the sulphate of potass is removed by boiling it repeatedly and washing it with water. This salt is insipid and may be deprived of its carbonic acid by almost all other acids, and by heat, and this is the mode in which calcined magnesia is obtained. The use is the same as the magnesia itself: dose $\mathfrak{3}\text{ss}$ to $\mathfrak{3}\text{ij}$ in water.

The Sulphate of Magnesia, or *Epsom Salts*, the latter name being attached from the circumstance of the waters of Epsom, (a small town in England,) holding a large quantity of this salt in solution. It exists likewise in several other springs, and in sea-water, from which it is procured in a crystalized state by evaporation. It is soluble in rather more than its own weight of water at 60° , and in $\frac{1}{4}$ ths of its weight at 212° . Its taste is bitter and disagreeable—specific gravity 1.66. As a medi-

cinal agent it is in frequent and excellent use as a cathartic: dose \mathfrak{z}_{ss} to \mathfrak{z}_{i} , largely diluted.

It is proper to observe, that the powerful poison oxalic acid has often been mistaken for this salt; the character of the two substances are essentially different; oxalic acid has a very sour taste, even when diluted with a large portion of water, while the sulphate of magnesia has a pure bitter flavour. The former reddens the vegetable blues like other acids, while the latter has no effect upon them. These are the simplest tests, and can be tried with the utmost readiness. The common blue paper in which the loaves of white sugar are wrapped will serve as a test paper, becoming immediately red, when immersed in any fluid containing the acid.

MALARIA.—The name in Italy of an endemic intermittent, which attacks people in the neighbourhood of Rome, and especially about the Pontine marshes. It is caused by the decomposition of animal and vegetable matter in those situations.

MALLOW—*Malva*.—The name of a genus of plants, of the class monadelphia and order polyandria.

The *Malva Sylvestris* is the variety employed in medicine, the leaves and flowers being used in the preparation of decoctions, fomentations, and emollient enemas, for the treatment of dysentery, ischuria, nephritis, strangury, &c. Dose of the decoction, *ad libitum*.

This plant is, however, inferior to the *marsh-mallow*, or *althæa*, a plant of the same class and order, but containing a much larger quantity of mucilaginous matter. The latter is exceedingly useful as a demulcent and emollient in cases of cough and hoarseness, and also for the diseases for which the common mallow is recommended.

The *official preparations* are a compound decoction and a syrup. They are *incompatible* with the salts of lead.

MANGANESE.—See *Metals*.

MANIA, (from *μαρῖναι*, to rage.)—Raving or furious madness.—See *Madness*.

MANNA, (from *mano*, a gift, Syrian: being the food given to the people in Israel in the wilderness.)—The sweet juice yielded by the *Fraxinus ornus* or flowering ash, a tree of the class polygamia, and order diœcia, and a native of the southern parts of Europe, particularly Sicily and Calabria. The juice is obtained by spontaneous exudation and incisions, and concretes upon exposure to the air. It is procured in three different kinds; the manna in tear, the canulated and flaky, and the common brown manna, all depending upon their respective purity, and the mode in which they are prepared from the plant. This substance is used more as an adjunct to other purgatives than alone, although, from its sweetness, it is frequently available for the use of

children, when nauseous laxatives are rejected. It may always be combined with the purgative neutral salts, and likewise enters into the composition of the confections of cassia and senna, and into the common cathartic and foetid enemata.

MARASMUS, (from *μαραίνω*, to grow lean.)—*Emaciation*.—This disease embraces four varieties. *M. atropia*, *M. climactericus*, *M. tabes*, and *M. phthisis*. The term is sometimes used to denote a condition of atrophy, in which the body wastes away without any apparent disease.

MASTODYNIA, (from *μασος*, a breast, and *ὀδυνή*, pain.)—*Phlegmon* of the breast in women, usually occurring at the period of suckling, and terminating in suppuration.—See *Breast*.

MEADOW-SAFFRON.—See *Colchicum*.

MEASLES.—(*Rubeola*.)—See *Fevers, eruptive*.

MECONIUM.—(*Retention of*.)—The meconium is a dark coloured, viscid matter, discharged from the bowels of infants shortly after birth, by the aperient quality of the mother's milk. If the secretion of milk, however, be backward, or prove insufficient, relief is easily procured by giving a drachm or two of castor-oil, a solution of manna or the like. The practice of giving infants, at birth, a variety of nauseous and disgusting articles cannot be too much reprobated. In a few cases, retention is caused by an imperforate anus.—See *Anus, Imperforate*.

MELANCHOLIA, (from *μελας*, black, and *χολή*, bile, the ancients supposing it to depend upon a redundance of black bile.)—A condition of madness, in which the mind is depressed by ill-grounded fears, and disturbed by imaginary and gloomy perceptions.—See *Madness*.

MELANOSIS, (from *μελας*, black.)—A peculiar form of tubercular disease of a dark soot-black colour.—See *Tubercle*.

MELICERITOUS, (from *μελι*, honey, and *κερος*, wax.)—The term applied to the contents of an encysted tumour, when resembling honey in consistence and appearance.—See *Tumours*.

MENORRHAGIA, (from *μηρία*, the menses, and *ρηννυμι*, to break out.)—Uterine hæmorrhage, or flooding as it is commonly called.—See *Uterus*, diseases and affections of.

MENSES, (from *mensis*, a month.)—The monthly sanguineous discharge from the vagina and uterus of females.—See *Uterus*.

MENSES, *interruption of*. } See *Uterus*.

MENSES, *retention of*. }

MERCURY.—(*Hydrargyrum*.)—See *Metals*.

MESENTERIC GLANDS, *diseased state of*.—In this disease the glands of the mesentery are diseased and obstructed, so that the chyle is impeded in its route towards the thoracic duct, consequently the requisite supply of nutriment cannot find its way into the system, and

hence debility and emaciation ensue. The disease affecting the glands is probably scrofula. It is generally confined to children under the twelfth year.

Symptoms.—General emaciation of the body, while the abdomen is enlarged, attended with deep seated lacerating pain. The countenance and whole body exhibit a morbid whiteness, the eyes are glassy and sunk, the nose sharpened, the bowels rather relaxed, the stools bilious and slimy, the mouth beset with aphthous eruptions, and the anus frequently excoriated, while the appetite is capricious and variable; the child grows fretful and inactive, hectic fever ensues, the abdomen still enlarges, the skin peels off, and the child at length perishes.

Treatment.—What is stated under the general treatment of *scrofula* will be applicable to this affection.

METALS.—All simple substances have been divided into two great orders: non-metallic substances, and metals. The latter are distinguished by their peculiar lustre and opacity; they are met with, sometimes in a pure metallic state, at others combined with each other, and again in combination with sulphur, oxygen, and the acids, particularly the carbonic, the sulphuric, the muriatic, and the phosphoric.

The medicinal agents, supplied from these substances, are principally yielded from the following metals:—antimony, arsenic, bismuth, copper, gold, iron, lead, manganese, mercury, silver, tin and zinc.

ANTIMONY.—(Antimonium—*ἄντιμονιον*.)—*Stibium*.—Of obscure origin—perhaps derived from *ἀντι*, against, and *μονος*, a monk—because Valentine, by an injudicious administration of it, killed his brother monks.)—A metal rarely found native, but generally in combination with sulphur or arsenic. Three preparations of this metal are employed in medicine:—The *sulphuret of antimony*, (antimonii sulphuretum,) consisting of seventy-four parts of antimony, and twenty-six of sulphur, slightly diaphoretic and alterative, in doses of gr: xv to ʒij, and given in cases of chronic rheumatism, scrofula, and cutaneous affections. The *precipitated sulphur of antimony*, (antimonii sulphuretum precipitatum,) or the old kermes mineral: an emetic, diaphoretic, cathartic, and alterative, in gr: j to iv in pill, for obstinate eruptions and chronic rheumatism. *Tartar emetic* or *tartarized antimony*, (antimonium tartarizatum,) composed of the tartrate of antimony and potash; emetic, in doses of from one to four grains in solution, followed by the cathartic,—effects, diaphoretic and expectorant, in $\frac{1}{2}$ of a grain to $\frac{1}{2}$ grain, used as an ointment, as a rubefacient and irritant, in the proportion of ʒiij to ʒi of lard.

ARSENIC.—(Arsenicum, from the Arabic word *Arsenek*.)—This metal is scattered in great abundance over the mineral kingdom, in the form of heavy masses, called *native arsenic*. The two principal varie-

ties are, the yellow sulphurized arsenic or orpiment, and the red sulphurized arsenic or realgar. When united with oxygen, the ore constitutes the native oxide of arsenic, which is used in obtaining the pure metal by sublimation. This native oxide has likewise the properties of an acid, and has accordingly been named the *arsenious acid*. It is one of the most virulent poisons, and rapidly exerts its fatal effects on the animal economy. It has been much employed in medicine, given in small doses, both in substance and solution, according to the formula of Dr. Fowler,* and has proved serviceable in the treatment of intermittent and remittant fevers; in cutaneous affections, chronic rheumatism, and in nervous disorders. Externally, it has been applied, though with doubtful efficacy, and always at considerable risk to cancerous sores.†

For a description of the poisonous qualities of arsenic, and the appropriate remedies to check its action—see *Poisons*.

BISMUTH.—(*Bismuthum*.)—This metal exists in considerable quantity in nature, mixed with a few earthy substances from which it is separated by fusion. It is also found in combination with oxygen and sulphur. Bismuth is of a white colour, with a foliated texture, very brittle, and easily fused,—specific gravity 9.822. The medicinal properties are not extensive; the metal is only employed in the preparation of the *sub-nitrate*, which is occasionally administered as a tonic and an anti-spasmodic in cases of dyspepsia attended with cardialgia: dose from gr: i to xii. This preparation is also termed the *white oxide* or the *magistery of bismuth*.

COPPER.—(*Cuprum*.)—A metal of a reddish brown colour, and considerable lustre, but soon tarnishing on exposure to the air. It is both malleable and ductile, and melts when submitted to a white heat,—specific gravity from 8.6 to 9. It is generally procured from the native sulphuret, the sulphur being expelled by roasting. It gives several preparations to the Pharmacopœia. The *sulphate of copper*, commonly called *blue vitriol*, is tonic, emetic, astringent, and externally escharotic in operation, and is administered in epilepsy, hysteria, intermittent fever, and occasionally to produce vomiting in incipient phthisis: exter-

* Fowler's solution is thus prepared:—Arsenious acid In fine powder, and the sub-carbonate of potass, of each 64 grains: distilled water one pint: alcohol four fluid drachms—boiled together in a glass vessel, until the arsenic is entirely dissolved. When cold, to be poured into a pint measure, the alcohol added, and so much distilled water as will fill the measure. Of this preparation, five drops may be taken twice a day, gradually increasing the dose, until it reaches a scruple.

† Febvre's once celebrated application was thus formed:—Extract of hemlock ʒi, Goulard's extract ʒiij, tincture of opium ʒi, arsenious acid gr: x; with this the cancer was wetted every night and morning.

nally as a stimulant to ulcers, or in weak solution as a collyrium in ophthalmia, and an injection in gonorrhœa and gleet: dose from gr: i to ij in pill: as an emetic from gr: ij to viij.

The Ammoniuret of Copper, or ammoniated copper, is in fact an ammoniaco-sulphate of the metal, formed by rubbing two parts of the sulphate of copper with three of the carbonate of ammonia; the carbonic acid of the latter being disengaged, while the ammonia combines with the sulphate. It is a crystalline powder of a rich violet colour. This salt is sometimes given as a tonic and anti-spasmodic in epilepsy and chorea: dose gr: $\frac{1}{4}$, gradually increased to gr: iij, in pill, twice a day.

The Acetate of Copper or *Verdigris* is also used, although rarely, for the same purposes as the sulphate or ammoniuret of copper. As an emetic in the dose of from gr: j to v; as a tonic, from gr: $\frac{1}{4}$ to $\frac{1}{2}$.

GOLD.—(*Aurum*.)—The most valuable of the metals, is of a yellow colour, very malleable and ductile, and rather soft,—specific gravity 19.3. Four preparations of gold are now employed in medicine. The *chloruret* or *muriate of gold*, styptic and disagreeable in taste. The *chloruret* or *muriate of gold and soda*. The *oxyde of gold*, and the *oxyde of gold by tin*, or purple powder of cassius. These substances have been employed, and particularly in the French hospitals, in the venereal, scrofulous, schirrus, and herpetic affections; also in goitre and incipient phthisis. The preparations chiefly in use, are the muriate, and the muriate of gold and soda: dose, one grain of the crystallized powder may be added to two grains of the powder of starch, and commenced by a fiftieth part, gradually increasing the dose until an eighth of the salt is taken. The administration of the salts of gold by friction upon the gums has been extolled by some of the French physicians.

IRON.—(*Ferrum*.)—This metal is generally procured from the clay iron-stone, which consists of oxyde of iron, combined with alumina, silicia, and other earthy substances. It is malleable and ductile, highly elastic and tenacious. The specific gravity is 7.8.

The *filings of iron* are occasionally given, in general debility, dyspepsia, hysteria, and chlorosis, for their tonic and deobstruent effects; they, however, only prove useful when in a state of oxydation, from the presence of acid in the stomach, and which is easily discovered by the evacuations occasioned, and the blackened condition of the fæces. Several of the salts and oxydes of iron are likewise employed in medicine.

The *acetate*, (a solution of the carbonate in acetic acid,) in doses of from ten to thirty minims. The *carbonate of iron*, or more properly the sub-carbonate, precipitated from the sulphate of iron by carbonate of soda. This salt is generally found in chalybeate waters, in which it is held in solution by an excess of carbonic acid. It has been frequently

and advantageously employed for the same purposes as the iron filings, in doses of from gr: iv to x, united with some aromatic or bitter extract. The carbonate has also been recommended as a remedy for cancer, particularly in a work on that disease, by Mr. Carmichael, of Dublin; but the effects produced by frequent trials, have not confirmed his encomiums on its use. The *sulphate of iron* or *green vitriol*, vulgarly called the *salt of steel*, is very generally prescribed in amenorrhœa, diabetes and in diseases of general debility: dose, gr. i to v, usually combined with myrrh or bitter extract. *Tartarized iron*, or the *tartrate of iron and potass*, is the mildest of the salts of this medicine, and particularly serviceable in the scrofulous tumours, and weakened bowels of children: dose, gr. x to 3ss in powder or bolus mixed with any aromatic. The *red oxyde of iron* is sometimes given in the same cases as the sulphate, in doses of from gr: v to x.

The *official preparations* of iron are, 'the *tincture of the acetate*, (tinct. acetatis ferri.) Dose m. xx to 3i in a glass of water. *Wine of iron*, (vinum ferri,) 3i to 3iv, twice or thrice a day, as a tonic in chlorosis, and the relaxed habits of young females.

Tincture of ammoniated Iron, (tinct. ferri ammoniati,) applied externally to scrofulous tumours, and exhibited to children labouring under struma or rachitis: dose, 3ss to 3ij. *Tincture of muriate of iron*, (tinct. ferri muriatis,) tonic and anti-spasmodic, and of excellent use in dysuria, depending on stricture of the urethra, in small doses, repeated every fifteen minutes until nausea is produced: dose, m. x to 3i, gradually increased. This tincture is also applied as a styptic to bleeding vessels. *Solution of alkaline iron*, (liquor ferri alkalini.) Dose 3ss to 3iss, of the same use as the former preparations.

LEAD.—(*Plumbum*.)—Is generally prepared from its sulphuret, (galena) by exposing it to heat with lime; the latter withdraws the sulphur, and the lead is melted and runs off. It is of a bluish white colour—is both malleable and ductile, but with little tenacity, and melts at about 600,—specific gravity 11.35. The *carbonate of lead* or *ceruse*, is merely used for external application, as an astringent and sedative, sprinkled on parts affected with local inflammation, and in the formation of ointments and plasters. *Litharge*, or the *semi-vitrified oxyde of lead* is only used for pharmaceutical purposes. The *acetate of lead*, vulgarly called the *sugar of lead*, is by far the most employed of all the preparations yielded by this metal. Internally it is astringent, in doses of from half a grain, to a grain and a half, combined with opium, and frequently administered in visceral hæmorrhages. Externally it is cooling and sedative in weak solutions, and in strong solution stimulant. The celebrated lotion known as *Goulard's extract*, is a solution of the sub-acetate of lead: when diluted with forty times its quantity of distilled water, it is an use-

ful application to phlegmonous inflammations and burns, and when yet more diluted it forms a good collyrium.

MANGANESE.—(*Manganesium*.)—This metal is obtained in a state of purity from its black oxyde, which exists in nature, in considerable quantities. It is of a grayish white colour, soon becoming oxidated and black on exposure to the air; hard and brittle, requiring an intense heat for its fusion. The *black oxyde* is the only preparation used in medicine, either for the purpose of procuring oxygen gas, or for fumigation. For the latter purpose, ℥iv of the muriate of soda may be added to ℥i of the oxyde, over which ℥i of sulphuric acid, and ℥ij of water should be poured, placing the vessel in a pot containing hot sand. The doors and windows of the room under fumigation should be closely shut for an hour or two; then thrown open, and a current of air allowed to pass through.

MERCURY, or Quicksilver—(*Hydrargyrum*.)—Exists in a pure state in nature, and also in combination with sulphur, in the form of the sulphuret, from which it is separated by heat. This metal is fluid, perfectly opaque and has considerable lustre,—specific gravity 13.5. It is the basis of several of the most useful medicinal preparations. The metal in its crude state has no effect upon the animal system; it has, however, sometimes been administered in constriction of the bowels and introsusception, from a mistaken notion, that it would act by means of its own gravity, in clearing obstructions. The purified mercury is used for a number of pharmaceutical purposes. The *nitric oxyde of mercury*, (*hydrargyri nitrico oxydum*.) This preparation, which is a peroxyde, probably containing some undecomposed acid, is stimulant and escharotic in its properties, and is used in the proportion of half a grain to four grains of sugar, to remove specks on the cornea, by blowing it into the eye; it is also applied as a stimulant to cancerous and foul ulcers, and in the form of ointment mixed with lead, (℥i of the nitric oxyde, to ℥ij of white wax, and ℥vj of lard,) to inflammations of the conjunctiva with a thickening of the inner membrane of the palpebræ.

The *gray oxyde of mercury*—(*hydrargyri oxydum cinereum*.) stimulant and anti-spasmodic, and not apt to disorder the stomach and bowels: dose, gr: j to ij thrice a day.

The *red oxyde of mercury*—(*hydrargyri oxydum rubrum*.)—Of the same properties as the last: also anti-syphilitic, but violently emetic in large doses. Dose, half a grain to gr: ij in pill, with half a grain of opium every night and morning: gr: iv acts powerfully as an emetic.

Corrosive Sublimate—(*hydrargyri oxymurias*.) the bi-chloride of mercury. Stimulant, anti-syphilitic, alterative, when a quick and general action is required; in lepra, combined with antimonials, and sometimes in chronic rheumatism. It is applied externally in the proportion

of gr: iij to a pint of water as a gargle in venereal sore throat, and as an injection in gonorrhœa; also to tetters, and in destroying fungus in granulations. The yellow wash or *lotio flava*, in compound of Di of this salt to ℥vj of lime water, and is of general use in the local treatment of chancres and venereal sores. The internal dose of the salt is from $\frac{1}{6}$ of a grain to a grain, once in twenty-four hours. For the injurious qualities of this salt, the symptoms occasioned, and the necessary treatment, see *Poisons*.

Calomel or *Sublimate of Mercury*—(*Hydrargyri submuriatis*.)—The proto-chloride, strictly speaking, of the metal in question. In operation anti-syphilitic and alterative in small doses; in large ones purgative. There is, perhaps, no medicine that enters so frequently into prescriptions as calomel, in venereal cases, hepatitis, scrofula, dropsies, rheumatism, diseases of the skin, &c. Its use, however, as an anti-venereal agent has greatly declined in modern practice.—(see *Venereal disease*.) Dose, gr: i to ij twice, thrice, or oftener when intended to produce ptyalism; gr: iij to v and upwards as a purgative. It is well known that children will bear much larger proportionate doses than adults.

The *Black Sulphuret of Mercury*—(*Hydrargyri sulphuretum nigrum*.)—*Ethiops mineral*; alterative, and sometimes administered in cancerous and scrofulous diseases: dose, gr: x to ℥ss .

The *Red Sulphuret of Mercury*—(*Hydrargyri sulphuretum rubrum*.)—*Cinnabar*; anti-syphilitic, and chiefly employed in fumigating ulcers of the nose, mouth, and throat, ℥ss being thrown on a hot iron. It has also been thus used in cutaneous affections: dose internally from gr: x to ℥ss in electuary or bolus.

White Precipitated Mercury—(*Hydrargyrum precipitatum album*)—Or the ammoniated sub-muriate. A peroxyde combined with muriatic acid and ammonia, forming a triple salt. Detergent in its operation, and employed externally, united with lard, in the treatment of scabies and other cutaneous affections.

Mercury with Chalk—(*Hydrargyrum cum creta*.)—A protoxyde, formed by trituration with the carbonate of lime. Alterative and anti-syphilitic, but inert or uncertain in its operation; sometimes recommended in porrigo and other cutaneous affections: dose, gr: v to ℥ss , twice a day.

Mercury with Magnesia—(*Hydrargyrum cum magnesia*.)—Also a protoxyde formed like the former, and resembling that in use and dose, and also in its uncertain effect.

SILVER.—(*Argentum*.)—Found native, or combined with oxygen, sulphur, and many metallic substances. It has a considerable lustre, is harder than gold, nearly as ductile, but not so malleable. Specific gravity 10.4.

The *Nitrate of Silver*, or Lunar Caustic, is the only preparation of this metal, made use of in medicine; this salt is tonic, anti-spasmodic, and escharotic; used in chorea and epilepsy: dose, $\frac{1}{2}$ of a grain, gradually increased to gr: iv in pill, three times a day. Externally it is applied locally to relieve strictures, to fungous ulcers, warts, and venereal sores: gr: ij in \mathfrak{z} i of distilled water, is a good injection in fistulous sores.

TIN.—(*Stannum*.)—This metal usually occurs in the form of oxyde, or tin-stone, or in that of pyrites, from either of which it is readily separated. It is of a white colour, and is very malleable, but has little or no elasticity. It melts at 442, and is of the specific gravity of 7.3.

The powder of this metal, (*pulvis stanni*,) is used as an anthelmintic against tænia; but its operation is solely mechanical and very uncertain: dose, \mathfrak{z} i in treacle early in the morning on an empty stomach.

ZINC.—(*Zincum*.)—Is generally procured from calamine, 2. native oxyde, containing a portion of carbonic acid, which is expelled by calcining it. It is of a white colour, with considerable lustre; becomes both ductile and malleable at a temperature between 200 and 300: melts at 700°, and is of the specific gravity of 7.190.

It forms the following medicinal preparations:

The *Acetate of Zinc*.—(*Acetas Zinci*.)—Employed as an astringent in inflammation of the eyes, urethra, and vagina, in the proportion of from gr: x to xx in \mathfrak{z} viii of distilled water. *Sulphate of Zinc*.—(*Sulphas zinci*.)—Emetic, tonic, anti-spasmodic; externally, astringent,—in doses of from gr: x to \mathfrak{ss} , to produce immediate vomiting; and gr: i to ij, as a tonic in phthisis, dyspepsia, and nervous affections. Externally it is employed in the same proportion as the acetate, as a lotion in external inflammations, and in a weakened degree as an injection in gleet and gonorrhœa. The *oxyde of Zinc*.—(*Zinci oxydum*.)—Tonic, anti-spasmodic; externally, detergent. Used in epilepsy and chorea, in doses of from gr: i to v, twice a day. Also formed into an ointment with lard—(\mathfrak{z} i to \mathfrak{z} vj adipis,) and applied in cases of ophthalmia, acrid scabby eruptions, and excoriated nipples.

MERCURY.—(*Mercurius*—*Quicksilver*.)—See *Metals*.

MEZEREON BARK.—(*Mezerei cortex*.)—The bark of the daphne mezereon, of the class octandria, and order monogynia; commonly called the spurge olive, or the widow-wail. It is inodorous, but of an acrid burning taste, yields its virtues to water and vinegar, and in operation is stimulant, diaphoretic, and in large doses, emetic. It has been much recommended by some authors in the treatment of venereal diseases, but its efficacy is very doubtful. It has been used with more advantage in chronic rheumatism, lepra, and scrofulous swellings; and

chewing thin slices of the recent root has been found serviceable in palsy of the tongue. Externally, the bark soaked in vinegar, is useful in keeping open issues. Dose, of the powder of the bark, gr: i, gradually increased to gr: x. A compound decoction, (decoctum daphnes mezerei,) is sometimes prescribed in secondary syphilis, in glandular swellings, and chronic rheumatism: dose, ℥iij to ℥vj, three times a day. This bark also enters into the composition of the compound decoction of sarsaparilla.

MILIARIA.—(*Miliary Fever.*)—So called from the small vesicles upon the skin resembling millet seed.—See *Fevers*.

MILLIPEDÆ, (from *mille*, a thousand, and *pedes*, feet, from their numerous feet,) wood-lice. These were formerly employed in the treatment of humoral asthma and dropsy; but they have long and deservedly been rejected in the practice of every well-informed practitioner.

MINT.—(*Mentha.*)—A genus of plants of the class didynamia, and order gymnospermia, of which there are several varieties used in medicine. *Mentha viridis* or the spear-mint, and *mentha piperita* or peppermint, are both stomachic, anti-spasmodic, and carminative; they are useful in flatulent colics, hysterical affections, and dyspepsia, acting as a slight cordial, and sometimes producing immediate relief.

The *officinal preparations* of both herbs are, an essential oil, a simple water, and a spirit. *Mentha pulegium*, or pennyroyal, is in frequent use as a stomachic, and emmenagogue, particularly in laborious menstruation. A simple water, essential oil, and spirit are likewise procured from this variety. There are other species of mint, but the above are only allowed a place in the pharmacopeia.

MISCARRIAGE.—See *Abortion*, in the article *Uterus*.

MOLLITIES OSSIUM.—A preternatural softness of the bones.—See *Bones*, diseases of.

MORPHIA.—(*Morphine.*)—A new vegetable alkali discovered in opium, constituting the narcotic principle of that drug.—See *Opium*, and its preparations.

MORTIFICATION, (from *mors*, death, and *fio*, to become.)—*Gangrene*—*Sphaecelus*.—The loss of vitality of a part of the body. It is divided into two species; the one preceded by inflammation, the other without it. In inflammations terminating in mortification, there is a diminution of power joined to an increased action; this becomes a cause of mortification by destroying the balance of power and action that ought to exist in every part. Healthy phlegmonous inflammation seldom ends in mortification except when very extensive. Erysipelatous inflammation is observed most frequently to terminate in gangrene; and whenever phlegmon is in any degree conjoined with an erysipelatous affection, it seems thereby to acquire the same tendency, being more

difficult to bring to resolution or suppuration, and apt to run into a mortified state.

The *common exciting causes of mortification* are, violent inflammation of any kind, such as chancre and carbuncle in particular habits, severe burns, compound fractures, dislocations, contused or lacerated wounds, surgical operations, gun-shot injuries, extravasation of urine into the scrotum, and other parts. The predisposing causes are, a peculiarity of the constitution which induces slight affections to become gangrenous; old age, intemperance, eating spiced rye, typhus fever, plague, &c.; also bad air and state of atmosphere in crowded hospitals, which frequently causes every wound within the walls to become gangrenous, producing *hospital gangrene*, and in this instance seeming epidemic. Constriction of a part so as to prevent the return of venous blood, as seen in strangulated hernia; impediment to the flow of arterial blood to a part after tying large vessels for aneurism, &c.; ossified state of the arteries; old age, and extreme debility; pressure on any part of the body, as the scapula, buttocks, &c., by long confinement in bed from sickness; exposure to cold.

Symptoms of Gangrene.—If preceded by inflammation, there will be a sudden diminution of pain, swelling, tension, and sympathetic fever, a livid discolouration of the part from a yellowish to a greenish hue, fetor, vesicles, and detachment of the cuticle, under which a turbid fluid is effused. Air is also generated in the cellular membrane of the part, which, on being touched, causes a crepitus.

Symptoms of Sphacelus.—The part becomes quite black and fibrous, and is destitute of motion, sensation, and heat. In both cases, there is great prostration, pale, wild, cadaverous countenance, hiccough; pulse small, rapid, and irregular; cold sweats, diarrhœa, delirium, death. But when proper remedies are timely resorted to, and the constitution has sufficient powers, the mortification is confined to narrower limits, and life may be saved. The disposition to extension of the disease being arrested, the lymphatics begin to throw off the dead mass by absorbing the particles of matter connecting the dead parts with the living, which being effected, the mortified part falls off, and the wound heals by granulation. The blood forms a coagulum in the vessels leading to the part whereby hæmorrhage is prevented. Three kinds of fever are observed in mortification, first, the *sympathetic inflammatory*; second, *typhoid*, or that attended with extreme debility; third, *febrile excitement*, apparently dependent upon disorder in the digestive organs.

Treatment.—The indications are, first, to arrest the progress of the mortification; second, to promote the separation of the part already mortified. If there exist the true phlegmonous inflammation with inflammatory fever, it will be proper to resort to bleeding, cooling purges,

and the anti-phlogistic regimen, as in ordinary inflammation. The local applications should consist of saturnine lotions and warm fomentations. But the symptoms must be closely watched, for the inflammatory diathesis may subside very suddenly, when such practice would become injurious. As soon as this change has taken place, the strength should be supported by a generous diet and wine ; and if much debility ensue, bark, cordials and stimulants will be necessary. If the attendant fever be of the typhoid form, the stimulant plan will then also be proper ; should delirium come on, musk, camphor, opium, and ammonia must be freely given. If diarrhœa ensue, kino, chalk, opium, and other astringents. Severe pain may be alleviated by large doses of opium internally, and also externally in form of fomentation. If the prevailing fever be that arising from a disordered state of the digestive organs, as is mostly the case when the erysipelatous inflammation is present, the *primæ viæ* must be speedily evacuated and then the stimulating system adopted. All exciting causes must be removed. Besides the local applications of lead-washes and warm fomentations, the best effects are often derived from the antiseptic and yeast-poultices. Stimulating remedies, as spirits and camphor, brandy, turpentine, &c., are not advisable, as they irritate the inflamed margin ; and deep incisions, as by some advised to stop the progress of the disease are useless ; when, however, the line of demarcation is perfectly formed, and the sphacelous mass very fetid, antiseptics may be applied to correct the smell, taking care they do not touch the new granulations. The best application for this purpose probably is nitric acid and water, (a drachm to an ounce.) When nature is unequal to throw off a large slough on an extremity, amputation is necessary, to prevent fatal effects from its irritation. Before resorting to the operation, Pott and most authors agree in directing that the line of separation should be perfectly formed ; but Larrey, and some others assert that when gangrene is the result of a mechanical cause, and the patient's life in danger, amputation should be performed without waiting for the line of separation.

HOSPITAL GANGRENE.—This is a peculiar species of humid gangrene, accompanied with phagedenic ulceration. It is characterized by its contagious or infectious nature, its disposition to attack wounds or ulcers in crowded hospitals, and its tendency to connect the soft parts affected into a putrid glutinous mass. It is generally believed to be communicated from one sore to another by its contagious nature ; but whether the affection can only be transferred by actual contact, or through the medium of a vitiated atmosphere, is a question on which the best medical authorities still differ.

The first symptoms which indicate hospital gangrene in a wound or ulcer, are a more or less acute pain, and a viscid white exudation on the

surface of the granulations, which lose their vermilion colour, and present at several points, spots of a grayish or dirty white hue, resembling venereal ulcers and apthæ; these soon spread, giving to the whole sore a gray ash colour, and rendering the surface, which sometimes bleeds, more or less indurated. A purple and œdematous circle then forms around the sore, and should the patient be of good habit, and the causes of infection not very violent, the disease may stop at this point. Most frequently, however, its progress is continued with terrific energy; the edges of the wound become hardened and everted, the granulations are large and tumid, and afterwards detached in the form of soft reddish sloughs in a putrid state. New parts are gradually invaded, both in breadth and depth, until the aponeurosis, muscles, vessels, nerves, tendons, periosteum, and even the bones are involved in one common destruction.

Treatment.—With a view of preventing the disorder, the wards in which the wounded are placed, should not be crowded, nor, if possible, communicate, and be subject to free ventilation; the utmost attention to cleanliness should be paid, and the sick be supplied with nourishing diet, drinks acidulated with the vegetable acids when diarrhœa is not present, and a moderate quantity of wine. The dressings should be applied with extreme care, and the same sponge never used in cleansing different sores. The oxygenated muriatic acid or the nitric acid fumigations may also be employed in the sick wards. Venesection has been objected to on the ground that the disease may attack the wound made by the lancet, and also on account of the accompanying fever being usually of the typhoid character. Dr. Hennen, however, employed the lancet in numerous cases, and with the utmost success; and Mr. Blackadder, one of the best authorities on this disease, admits, although he objects to its general employment, that in some instances it may be demanded. The milder forms of the disease will sometimes yield to the application of the vegetable and dilute mineral acids, or the solutions of silver and mercury. When too far advanced for this treatment, Delpech, of Montpellier, applied caustics, especially the nitrate of silver in substance, and if these failed, he had recourse to the actual cautery. This, though a severe remedy, may be adopted when the undiluted mineral acids, and the solution of arsenic, have failed in arresting the gangrene. See Kirkland on Surgery, and the works of Larrey, Callisen, Pott, Bell, A. and S. Cooper.

MOXA.—A cone or cylinder composed of the leaves of the *artemisia latifolia*, used in China as a counter-irritant, in the formation of a superficial eschar, or a deep suppurating wound. In the present practice, it is usual to make a cone of some cotton wool, or of lint dipped in a solution of nitre, and which, on being placed in a porte-moxa, is fired, and

combustion maintained by means of a blow pipe to the degree required by the practitioner. The diseases in which Baron Larrey found the moxa efficacious, were amaurosis and incipient cataaraet, when he applied it over the course of the facial nerve, just behind the angle of the jaw; deafness arising from cold, tic douloureux and partial paralysis of the muscles of the face; palsy of the lower extremities, plithisis, diseased spine, disease of the hip-joint, &c. In order to prevent the subsequent inflammation and suppuration from being too great, the liquor ammoniæ should immediately be applied to the burnt part.

MURIATE OF BARYTES.—(*Murias' barytæ.*)—This salt is prepared, either from the carbonate or the sulphate of the earth, and is chiefly employed in the preparation of its solution (*solutio muriatis barytæ*) by the addition of one part to three of distilled water. Its operation is stimulant, deobstruent; and diuretic, in large doses violently emetic and purgative, and extremely deleterious. It is administered in scrofulous affections, glandular obstructions, worms, and cutaneous diseases, but with doubtful efficacy: dose, m. v to x, twice a day, and gradually increased until nausea is produced. Externally, it is applied as an escharotic to fungous ulcers. *Incompatible* with the sulphate of soda, alumen, and the nitrates of potass and silver.

MUSK.—(*Moschus.*)—An unctuous substance contained in excretory follicles about the navel of the male *moschus moschiferus*, or the musk deer, a ruminating quadruped somewhat resembling the antelope. The best musk is brought from Tonquin, in China; and inferior sorts from Bengal and Russia. The odour is peculiar, strong, and aromatic; the taste slightly bitter, the colour of a dark reddish brown. It is partially soluble in water, and perfectly so in alcohol and sulphuric acid, with the loss of its odour. In medicinal operation it is stimulant, anti-spasmodic, and diaphoretic; administered in spasmodic affections, as hysterics, singultus, pertussis, trismus, and epilepsy; in the last of which it has occasionally, when given to the extent of \mathfrak{z} ss three times a day, restrained the fits in old cases for upwards of three months. It is serviceable in typhus, attended with subsultus tendinum; in cholera it frequently checks the vomiting; and, moreover, arrests the progress of idiopathic gangrene: dose, gr: ij to \mathfrak{z} ss, every three or four hours in bolus; its effects are soon apparent in an increase of the pulse, and an excitement of the nervous system without fever.

Officinal preparations.—Musk mixture, (*mistura moschi*), \mathfrak{z} i to \mathfrak{z} vj of rose water, of which \mathfrak{z} ss to \mathfrak{z} ij, every four or five hours; this is a very convenient form of administering the remedy. Tincture of musk, (*tinct. moschi*), \mathfrak{z} i to \mathfrak{z} iv, for the same purposes as the substance.

MUSTARD SEED.—(*Sinapis semina.*)—*Sinapis nigra et alba*, annual plants of the class tetradynamia, and order siliquosa. The

seeds consist of fecula, mucilage, an acrid volatile oil on which their principal virtue depends, a bland fixed oil, and an ammoniacal salt when bruised. Water takes up their active matter, and the fixed oil is given out on expression. Their operation is stimulant, diuretic, and emetic; administered in dyspepsia, constipation, and chlorosis: dose, \mathfrak{z} i to \mathfrak{z} ss of the seed, either entire or only slightly crushed,—or \mathfrak{z} ij of an infusion made by immersing \mathfrak{z} ij of the seeds, and the same quantity of horse-radish root, in two pints of boiling water, and allowing them to remain therein for twelve hours; then straining and adding \mathfrak{z} ij of the spirit of pepper-mint. A strong infusion of bruised mustard seed will produce vomiting in apoplexy and paralysis, and may also be used in some cases of poisoning. Externally, the bruised seeds are applied to the soles of the feet as a cataplasm, in phthisis and comatose affections.

MYOPIA, (from $\mu\upsilon\omega$, to wink, and $\omega\chi$, the eye,) near-sighted.—See *Amanrosis* in *Eye*, diseases of.

MYRRH.—(*Myrrha*).—(A Hebrew word: also called *stacte*, and the worst kind *ergasma*.)—The botanical situation of the tree yielding this gum, has not been fixed, but it may in all probability be referred to the genus *acacia vera* of Linnæus. The tree grows on the eastern coast of Arabia Felix, and in that part of Abyssinia, situate near the Red Sea. It is obtained both by spontaneous exudation and incision, is of a deep reddish yellow colour—of a peculiar and fragrant smell, and a bitter taste: the essential constituents are, a resin, gum, essential oil, and some extractive matter. It is partially soluble in distilled water, when aided by friction, and its solubility is yet further increased by the addition of camphor or an alkali—alcohol merely dissolves its resinous part. In operation, it is stimulant, expectorant, and emmenagogue, also tonic, and, as such agrees with some constitutions better than any of the bitters. It is prescribed in humoral asthma, chronic catarrh, amenorrhœa, and phthisis, when unattended by inflammatory symptoms: dose, gr: x to \mathfrak{z} i in powder.

Official preparations.—Tincture of myrrh, (tinct. myrrhæ,) \mathfrak{z} ss to \mathfrak{z} i, in the same cases as the powder, but chiefly employed, when united to the infusion of roses, as a gargle, and as a wash for the mouth when the gums are spongy. Tinct. of aloës and myrrh, (t. aloës et myrrh, vel t. aloës composita,) \mathfrak{z} i to \mathfrak{z} ij—purgative and stomachic, and useful as a cathartic in chlorosis. *Pilulæ aloës eum myrrha*, gr: x to \mathfrak{z} i. *Pilulæ ferri eum myrrha vel p. ferri compositæ*—tonic and emmenagogue, gr: x to \mathfrak{z} i. Compound galbanum pill, (p. galbani comp.) gr: x to \mathfrak{z} i, in hysteria and hypochondriasis. *Pil. assafœtidæ comp.*, of a similar use and dose, and compound rhubarb pill, (p. rhei comp.) laxative and stomachic, gr: x to \mathfrak{z} i, twice a day.

NÆVI MATERNI, or *Mother's Marks*, with which some children are born, are of two kinds ; first, those which are merely red marks or brown specks on the skin, not elevated above the surface, and giving no inconvenience, the second are small red tumours, which increase in size and elevation, many of which consist of congeries of vessels, which, after a while, burst and bleed profusely. These have been denominated by Mr. John Bell, aneurism by anastomosis, and require to be extirpated.—See *Aneurism by Anastomosis*.

Dr. Bushe, of this city, has operated several times successfully upon children afflicted with this peculiarity of aneurism, both in extirpation of the tumour, by the knife, and by transfixing its base in different points with a cataract needle heated to whiteness. This latter mode has been also practised by Velpeau, and likewise extended to the puncturing of arteries in the neighbourhood of dilated aneurisms.—See the *New York Medico-Chirurgical Bulletin*, volumes 1 and 2.

NAPHTHA—(*ναφθα*.)—A native combustible liquid of a yellowish white colour, and bituminous smell. It occurs in springs on the shores of the Caspian sea, and in Sicily and Italy. It has been sometimes employed as an external application for contractions of the limbs, paralytic affections, cramps, chronic rheumatism, &c.

NARCOTINE.—One of the immediate principles of *Opium*, which see.

NEBULA, (from *νεφελη*.)—A cloudy spot in the cornea.—See *Eye*, diseases of.

NECROSIS, (from *νεκρω*, to destroy.)—The death of the whole or a portion of a bone.—See *Bones*, diseases of.

NEPHRITIS, (from *νεφρος*, a kidney.)—*Inflammation of the Kidneys*.—See *Urinary Passages*, diseases of.

NETTLE-RASH.—(*Urticaria*.)—See *Cutaneous diseases*.

NICOTIANA, (from *Nicott*, who first introduced the plant into Europe.)—*Tobacco*, which see.

NIGHTMARE.—*Incubus*—(from *incubo*, to lie upon.)—This term signifies an affection in which an oppression and suffocative weight on the chest is experienced, rendering the person attacked incapable of changing his position, and threatening strangulation.

Dr. Bateman considered it probable, that the seat of the nightmare was chiefly in the stomach ; the sympathy of this organ being so remarkable, that there can be no difficulty in referring the several symptoms to a disagreeable irritation of the nerves of the stomach. Persons are generally attacked while lying on their back, because in this position the viscera makes greater pressure on the diaphragm, and inspiration is less easy. The immediate cause of incubus may be dyspepsia, particularly after having partaken of a hearty supper, and depression of the

mind from intense study, or the occurrence of untoward events. It is not unfrequently experienced in a state of pregnancy, and hypochondriacs are especially liable to its invasion.

The *treatment* is sufficiently simple ; when dependent on dyspepsia it must be regulated by the same means as recommended in the description of that disease, and afterwards the action of the bowels closely attended to. The mind and body in all cases should be kept free from all undue fatigue, and late meals in particular be avoided. When arising from despondency, a change of scene and the society of friends will accomplish more than medicine, and a temporary removal even, from the spot where the mind has been excited, will prove of immediate and decisive benefit. The patient should be supplied with a hard mattress, and sleep with his head raised on high pillows, and where the attacks are violent, it will be prudent for an attendant to watch and arouse him upon the first manifestation of the oppression.—See Waller's treatise "on Incubus ;" Bond "on Incubus ;" and Whytt "on Nervous Disorders."

NIGHTSHADE.—*Dulcamaria Caules*, or woody nightshade twigs, from the solanum dulcamara, a shrub of the class pentandria, and order monogynia. Of a bitter taste at first, followed by a slight sweetness. Diuretic and sudorific in operation, and administered in chronic rheumatism, asthma, dropsy, lepra, and scrofula : dose, \mathfrak{z} i to \mathfrak{z} ii in powder: in the form of extract, gr: v to x, and in that of decoction, (\mathfrak{z} i of the twigs to a pint and a half of water,) \mathfrak{z} iv to \mathfrak{z} i, with any aromatic tincture twice or three times a day.

NIPPLES.—(*Excoriated.*)—This is caused by the constant moisture of the part, and the irritation to which it is subjected, and is sometimes productive of great pain and inconvenience. They may be frequently wet with a lotion, consisting of gr: ij or iij of the acetate of lead to \mathfrak{z} i of rose-water, or anointed with a composition of \mathfrak{z} ss of borax, and \mathfrak{z} ss of honey, thickened with a little flour.

NITRE.—(*Nitrov.*)—*Saltpetre.*—The nitrate of potass.—See *Potass.*

NODE.—(*Nodus.*)—A swelling of a bone, or a thickening of the periosteum, commonly occurring on the os frontis, the fore part of the tibia, radius, and ulcers, and usually proceeding from a venereal cause.—See *Exostosis* in *Bones*, diseases of, and *Venereal* disease.

NOLI ME TANGERE.—A species of lupus, somewhat allied in character to cancer, but differing from it by not contaminating the adjacent parts by absorption, extending itself only by contact. It attacks the skin and cartilages of the nose, commencing with small tubercles, which, after a time, change into superficial spreading ulcerations on the alæ of the nose. The cartilages and even the whole nose are frequently destroyed by the ravages of this disease, which, in some instances,

extends even to the lips and palate. It has been considered by Sir A. Cooper, that this affection consists in ulceration of the sebaceous glands or follicles of the nose.

Treatment.—This formidable disease too frequently resists every attempt of the surgeon to subdue it; the most powerful remedy undoubtedly is arsenic; and many forms have been proposed in which it should be applied. The following preparation, used in St. Bartholomew's hospital, in London, is perhaps entitled to the most regard, both as an internal and external agent: arseniate of potass gr: ij, mint water ℥iv, spirits of wine ℥i. Of this ℥ij may be taken twice a day; and the sore likewise be frequently moistened with it. The citrine ointment, (ung. hydrargri nitratis,) the solution of the nitrate of silver, and the muriate of barytes, have likewise been proposed in the treatment of this disease; but they must yield to arsenic in point of efficacy. The occasional administration of Plummer's pill, and the compound decoction of sarsaparilla, may be recommended during the arsenical treatment.

NOSTALGIA, (from *νοσσω*, to return, and *αλγος*, pain.)—An affection caused by a vehement desire to revisit the native country of the sufferer. It is characterized by gloom and melancholy, loss of appetite and sleep, and often disposes the mind to suicide when its longings cannot be gratified. It is described as most common to the natives of mountainous countries, and numerous instances have been certainly found of its occurrence among the Swiss and Scotch.

The only *treatment* likely to be attended with success is by returning the sufferer to the scene of his former associations; when this is impossible, kindness may, in some cases, reconcile him to his situation.

NUX-VOMICA.—The seed of the *strychnos nux-vomica*, a plant of the class pentandria, and order monogynia. This peculiar substance, which, until the experiments of M. M. Pelletier and Caventon, had no place in the pharmacopeias, closely resembles, in its properties, the upas of Java, the bean of St. Ignatius, and the snake-wood, (*strychnos colubrinum*,) all deriving their intense powers of acting on the system from two peculiar vegetable alkalies, termed *strichnine* and *brucine*, these principles existing in combination with an acid, called the *igazuric*.

Strichnine is prepared by adding to the alcoholic extract of *nux-vomica* in water, a solution of the sub-acetate of lead, until precipitation ceases, procuring the *strichnine* afterwards in a pure state, by separating the lead by sulphureted hydrogen, and the addition of magnesia, with which the liquid is boiled. The excess of magnesia is afterwards separated by washing the precipitate in cold water and re-dissolving it in alcohol, which being afterwards evaporated, a mixture of *strychnine*, *brucine* and colouring matter is yielded. A further solution in weak alcohol dissolves the two latter, leaving the *strychnine* in a crystalized form.

Its taste is intolerably bitter, with a metallic styptic flavour, and of all vegetable principles it contains the most azote ; it is nearly insoluble in water. As a medicinal agent, it may be given in all cases where the alcoholic extract of nux-vomica is required. The German physicians in particular have prescribed it in mania, epilepsy, and hydrophobia, as well as in chronic rheumatism, scrofula, lues venerea, and cutaneous diseases. In Sweden it is said to have been advantageously employed in dysentery. It has been tried at the Hospital de la Charité, in Paris, and with great success in cases of partial paralysis.

Of strychnine, several preparations have been formed. In pill two grains may be mixed with a sufficient quantity of conserve to make twenty-four pills, one of which may be taken night and morning. In tincture, (three grains of strichnine to ℥i of alcohol at 36°,) six, gradually increased to twenty-four drops. In mixture, which is perhaps the most usual mode of its exhibition, one grain of strichnine to ℥ij distilled water, and two drops of acetic acid : dose, from sixteen to twenty minims every morning and evening.

Of the alcoholic extract of nux-vomica, one grain may be taken every night, in the form of pill, gradually increasing the dose to four or five grains, until their peculiar tetanic effect is produced.

Brucine is rarely administered : its properties are nearly the same as those of the strychnine, but less intense in degree.

NYCTALOPIA, (from *νοξ*, the night, and *ωχ*, the eye.)—A peculiar defect in vision, by which the patient can scarcely discern objects in the day time, but in the twilight sees tolerably well. It is a species of *amaurosis*, which see in *Eye*, diseases of.

NYMPHOMANIA, (from *νυμφα*, a nymph, and *μανια*, madness.)—*Furor Uterinus*.—A disease characterized by excessive desire for coition in women.—See *Uterus*, diseases of.

OAK-BARK.—(*Quercus Cortex*.)—The bark of the quercus robur or oak tre. Class monœcia—order polyandria. In operation tonic and astringent ; administered in intermittent, and for restraining hæmorrhage or alvine flux ; dose of the powder, gr: x to ℥ss twice or thrice a day. Of the decoction, (℥i of the bark to two pints of boiling water,) ℥i to ℥ij ; employed for the same purposes as the powder ; also as a gargle, and as a fomentation in cases of prolapsus of the rectum or uterus.

OBSTIPATION, (from *obstipo*, to stop up.)—See *Constipation*.

ODONTALGIA, (from *ὀδους*, a tooth, and *αλγος*, pain.)—The *Toothache*, which see.

ŒDEMA, (from *οιδεω*, to swell.)—A symptom, and indeed sometimes a synonym of anasarca. The term is understood to apply to a swelling caused by an extravasation of fluid into the cellular membrane

in any part of the body, more particularly the lower extremities. It is often entirely local, arising from specific causes, unconnected with constitutional derangement. The part is cold, pale, inelastic, and retains the mark when pressure is made upon it. When œdema arises from general debility, as after long fevers or chronic diseases, the patient may resort to friction, rubefacient liniments, and bandages of flannel or the laced stocking, if the leg be affected. Nourishing food, a moderate quantity of wine; gentle exercise, sea bathing, and the occasional administration of tonic medicine will be proper auxiliaries. The limb should likewise be kept in a horizontal position towards night, when the swelling is apt to increase. Should œdema occur after sprains, bruises, &c., from debility of the vessels, the same measures will be applicable, while in all cases where it arises from pressure on the veins by tumours or aneurisms, the necessary surgical treatment will be demanded. Œdema is often detected over abscesses, and this of course is speedily relieved by an evacuation of their contents. It is also frequent during pregnancy, but soon subsides after parturition. Where this is much attendant inflammation in any case of œdema, the use of leeches, saturnine lotions, and cathartics will be required; when accompanying erysipelas, the same treatment required in that disease will be necessary.

ŒSOPHAGUS, Diseases and Injuries of.—1. *Inflammation.*—This part is liable to common inflammation, is attended with violent heat, pain, and throbbing, with such pain and difficulty in swallowing that the disease has been mistaken for hydrophobia. But in this case no alarm or spasm is experienced on seeing or hearing the agitation of water, as in hydrophobia, and no inconvenience is felt until the very moment of deglutition. The treatment is that of inflammation in general, particularly general and very copious bleeding, saturnine lotions and blisters to the neck. The bowels may be opened by clysters, and nutriment supplied in the same way. 2. *Stricture.*—The œsophagus is liable to three species of this affection; first, the *common stricture*, analogous to that in the urethra; second, *schirrus*; third, *spasmodic*. In the common stricture there is a difficulty of swallowing, particularly solids, which are, when the stricture is great, thrown back with great force, attended with pain, extending along the fauces to the base of the skull, and through the eustachian tube to the ear. The pain will sometimes return without any attempts being made to swallow. The stricture may be situated at any part of the tube, though more frequently it is high up, and after some continuance, is very frequently attended with ulceration below it, as well as near to the stomach, probably caused by efforts made in retching, and the loss of the natural secretion of the

part. If not relieved it goes on increasing until no solid or even fluid can pass into the stomach, and the patient perishes from want of food.

Treatment.—As the stricture is frequently high up and consists only of a transverse fold of the membrane lining the tube, the daily use of a proper sized bougie is often very serviceable; it should be worn several hours, and gradually increased in size. The propriety of the caustic bougie seems very questionable.

In the second species, the stricture will mostly be formed just behind the thyroid or cricoid cartilage. It begins with a thickening of the membranes, which extends to the surrounding parts, with the deep lacerating pains peculiar to the schirrus, and at length involves the whole in cancerous ulceration. It is incurable. If a bougie be passed, it meets with obstruction on first entering the ulcerated part, and afterwards on passing from that to the sound part below, with a sensation resembling two strictures. Calomel, cicuta, &c., may be given as directed under cancer, and in the outset, before ulceration has commenced, topical bleeding may retard its progress. Sir E. Home passed the bougie with greater facility, when the tongue was brought out of the mouth; and if the bougie extend down a distance of eight inches from the incisor teeth without obstruction, it is then beyond the usual seat of stricture; but if it meet with obstruction it should be held steadily against it until it have passed. The size and seat of the stricture can be ascertained from the indentations made upon the bougie.

Of the third species.—In spasmodic stricture there is a periodic sudden difficulty in swallowing, lasting indefinitely a few minutes, or the whole day. The stomach and bowels should be evacuated, and blisters applied to the neck and throat. The daily use of the bougie is even here useful. In all bad cases the hollow bougie must be introduced by the nose through which wine and rich soups may be injected for the patient's support. Nutritious clysters should also be often given. Issues, cold bathing, and other anti-spasmodics may be resorted to. Consult Mr. Home, on Stricture, vol. 1 edit. 3d; also Warner's Cases in Surgery.

When any foreign substance is lodged in the œsophagus that can neither be withdrawn by the fingers nor forceps, nor pushed onwards to the stomach by the probang, but continues to prevent deglutition, and by its pressure on the back part of the trachea or larynx threatens suffocation, an operation for its removal becomes requisite, which Mons. Lisfranc recommends to be thus performed:

The patient should be seated in a chair, with his head reclining backwards on the breast of an assistant; the operator, placing himself in front, takes the scalpel or bistoury, and holding it like a pen, commences his incision on the inner border of the left sterno mastoid mus-

cle, opposite the superior edge of the thyroid cartilage, and continues it down to the lower edge of the cricoid. An assistant now draws the carotid sheath to the outer edge of the wound to secure it from the knife; while the operator, cutting carefully through the cellular tissue, exposes the œsophagus, where it inclines to the left side from behind the trachea. A canula with a grooved stilet, or the sonde a dard, formed like a female catheter, but considerably longer, is to be passed by the mouth down the œsophagus, inclining its point to the left side, which causes it to be readily felt from the external wound. The stilet is now to be pushed forwards through the coats of the œsophagus, when the operator feels with his finger along its concave edge, to ascertain that no large arterial branch be situated on it, and then passes a bistoury into the groove, which directing it onwards opens the œsophagus. He now feels for the foreign substance, which is to be extracted by a pair of dressing forceps passed along his finger.

During the operation, an assistant should carefully sponge away the blood after each cut of the knife, and should any arterial branch be divided, though little hæmorrhage follow, it should be immediately secured, or it would render the operation much more tedious and obscure. The edges of the wound are to be approximated and a light bandage applied. The patient is to be kept at rest and no nourishment given him by the mouth for a few days, but his strength being kept up by nutritious clysters.

OIL, (*Oleum*.)—This term is used to express a fat or unctuous body, either fluid or solid, insoluble in water, inflammable, and more or less volatile. The two great kingdoms of animal and vegetable life, both contribute in yielding this product; but that from the latter is alone medicinally employed.

Vegetable oils are yet further divided into the *fixed* and *volatile* oils. The former are of a mild taste, and do not boil at a less temperature than 600°, when they are at the same time decomposed. Volatile oils, on the contrary, have a hot and acrid taste, and volatilize at a temperature of about 310°, without decomposition. The *fixed* oils are medicinally employed as relaxing and laxative remedies; and they enter into the composition of balsams, ointments, plasters, &c. The *essential* oils are prescribed as cordials, stimulants, and anti-spasmodics.

Æthereal oil, (*oleum æthereum*.)—Prepared in the distillation of æther; used in the formation of the compound spirit of æther, or Hoffman's anodyne.*

* The exact composition of Hoffman's liquor is not known; the compound spirit of æther is generally so termed. It is formed by the addition of 3ij of the æthereal oil to a pint of ether, and is administered as a stimulant and anti-spasmodic, in typhus fever, hysteria, and to allay irritation in painful diseases: dose, ʒss to ʒij, in water.

Oil of almonds, (oleum amygdalarum.)—Expressed both from sweet and bitter almonds. Demulcent and emollient, in catarrh, and coughs, formed into mucilage—used also in injections: dose, ʒss to ʒi .

Oil of amber, (oleum succini.)—Distilled from amber. This oil is only used externally, as a stimulating preparation to paralytic limbs, or those affected with cramps or rheumatism. It has sometimes been employed as an embrocation to the spine in cases of whooping-cough.

Oil of anniseed, (oleum anisi.)—Distilled from the seeds. Stimulant and carminative, in doses of from ʒv to xv , in any appropriate vehicle, and occasionally administered in cases of flatulent colic.

Oil of carraway, (oleum carui.)—Distilled from the seeds. Stimulant and carminative, ʒv to x .

Oil of castor—castor oil, (oleum ricini.)—Expressed from the seeds without the application of heat. The most valuable oil in medicine, and especially useful in those cases where stimulant and drastic purges would be injurious; also administered in dysentery, colica pictonum, calculous complaints, and ileus. It may always safely be given to children and pregnant women, and is also a good adjunct to clysters: dose ʒss to ʒiss .

Oil of chamomile, (oleum anthemidis.)—Distilled from the flowers. Stimulant and anti-spasmodic, in colic, cramp of the stomach, and as an adjunct to purgative pills: dose, ʒv to x .

Oil of cinnamon, (oleum cinnamomi.)—A highly fragrant essential oil, powerfully stimulant and stomachic, and used in cramps of the stomach, hicough, and flatulent colic: dose, ʒi to ij , on a lump of sugar, or in mucilage and syrup.

Oil of croton, (oleum tiglii.)—Expressed from the seeds of the croton tiglium, a tree of the East Indies, and of the class monœcia, and order monadelphica. A violent drastic purgative, but of essential service in apoplexy, obstinate costiveness, or whenever a speedy action of the bowels is required: dose, ʒi to ij , made up in pill with a crumb of bread, or rubbed up with mucilage and syrup.

Oil of fennel-seeds, (oleum seminum fœniculi dulcis.)—Procured by distillation from the seeds—carminative and diuretic: dose, ʒij to x .

Oil of juniper, (oleum juniperi.)—By distillation from the berries. Stimulant, diaphoretic, carminative, and diuretic; administered in dropsies, and sometimes advantageously combined with digitalis when given in the form of pills: dose, ʒij to x .

Oil of lavender, (oleum lavandulæ.)—Distilled from the flowers. Stimulant, and occasionally administered in hysteria and nervous headache: dose, ʒi to iv .

Oil of linseed, (oleum lini usitatissimi.)—Expressed from the bruised seeds. This oil has occasionally been given in cases of ileus, when all

other purgatives have failed, but its principle use is in the form of clysters, in flatulent colic, and abrasion of the rectum, and externally in the formation of liniments for burns and scalds. Dose internally, \mathfrak{z} ss to \mathfrak{z} i. In clysters, \mathfrak{z} ij to \mathfrak{z} ij.

Oil of marjoram, (oleum origani.)—By distillation from the dried plant. Stimulant and narcotic. But rarely used, except as an odontalgic.

Oil of mint, (oleum menthæ viridis.)—By distillation from the dried plant. Stimulant and carminative, in flatulence and anorexia: dose, \mathfrak{M} ij to v.

Oil of penny-royal, (oleum pulegii.)—By distillation from the dried plant. Stimulant and anti-spasmodic; sometimes employed in hysteria; dose, \mathfrak{M} i to v.

Oil of peppermint, (oleum menthæ piperitæ.)—By distillation from the dried plant. Stimulant, anti-spasmodic, and carminative, in cramps of the stomach and flatulent colic: dose, \mathfrak{M} i to iij.

Oil of pimento, (oleum pimentæ.)—By distillation from the fruit. Stimulant, and used in debility of the stomach, colic, and tympanitis: dose, \mathfrak{M} ij to v.

Oil of rosemary, (oleum rosmarini.)—By distillation from the tops of the dried plant. Stimulant in doses of from \mathfrak{M} ij to vj.

Oil of rue, (oleum rutæ.)—Distilled from the dried plant. Anti-spasmodic, and externally rubefacient. Administered in hysteria, and the convulsions of infants attendant on dentition; as an external application in palsy: dose, \mathfrak{M} ij to x.

Oil of sassafras, (oleum volatile lauri sassafras.)—By distillation from the chips. Stimulant, sudorific and diuretic, in scorbutus, chronic rheumatism, and cutaneous diseases: dose, \mathfrak{M} ij to x.

Oil of savine, (oleum foliorum sabinæ.)—By distillation from the dried plant. Stimulant and emmenagogue, and externally vesicant: dose, \mathfrak{M} ij to vj, but rarely employed.

Oil of turpentine, (oleum terebinthinæ rectificatum.)—Re-distilled from the common oil. Stimulant, diuretic, sudorific, and anthelmintic; externally rubefacient. Administered in chronic rheumatism, lumbago, and sciatica, and likewise in passive uterine hæmorrhages: dose, \mathfrak{M} x to \mathfrak{z} i. It has of late been much employed in \mathfrak{z} ss to \mathfrak{z} i doses, for the expulsion of the tænia solium. In external use, it is applied to indolent tumours, as an embrocation in rheumatism and sprains, or whenever a rapid counter-irritant is required.

OLIVE—(Olea Europæ.)—A tree of the class monandria, and order monogynia, of the growth of the south of Europe, particularly France and Spain. The fruit of this plant is well known as an agreeable esculent to some persons, but its principal consumption is in the preparation

of the common salad oil, or *oleum olivæ* of medicine. This oil is expressed from the ripe fruit, and is transparent, and of a pale straw colour. In operation, demulcent, emollient, and gently laxative; employed in catarrh and pulmonary complaint, in emulsion with mucilage, and sometimes in a simple state when acrid matters have been swallowed. Externally, it has been used as a friction in plague, as an injection in gonorrhœa, as an adjunct to clysters in dysentery, and pharmaceutically in the formation of ointment and plasters: internal dose, \mathfrak{z} i to \mathfrak{z} ii.

OMPHALOCLE, (from *ομφαλος*, the navel, and *κηλη*, a tumour.) Umbilical Hernia.—See *Hernia*.

ONYCHIA, (from *ονυξ*, the nail.)—*Whitlow*, which see.

OPHTHALMIA, (from *οφθαλμος*, the eye.) An inflammation of the membranes of the eye.—See *Eye*.

OPISTHOTONOS, (from *οπισθεν*, backwards, and *τεινω*, to draw.) A spasm of the muscles of the back, retaining the body in a bent position, and an usual accompaniment to *Tetanus*, which see.

OPIUM, the inspissated juice of the papaver somniferum, an annual plant of the class polyandria, and order monogynia. There are two kinds of opium, the Turkey and the East Indian, of which the former is the most valuable, both in a commercial and medical point of view. It occurs in solid flat pieces of a compact texture, and possesses considerable tenacity. It has a heavy and nauseous odour, and a bitter and slightly acrid taste. In small doses, it is stimulant, but in larger ones sedative and narcotic, and of all this class of medicines may be considered the most valuable. It may be administered nearly in all painful affections, where inflammation is not very high; in diarrhœa and dysentery, in typhus, cholera and pertussis, in convulsive and spasmodic affections generally, and in a variety of other diseases: dose, gr: $\frac{1}{4}$ to $\frac{1}{2}$, as a stimulant; as a narcotic, gr: i to v, but in some complaints, and especially those of a spasmodic character, it has been administered in much larger, and indeed in almost incredible quantities.

The common *officinal preparations*, into which opium enters, are the following: confection of opium, (*confectio opii*,) gr: x to \mathfrak{D} i, in bolus or mixture, in flatulent colic, colliquative diarrhœa, atonic gout, &c. Extract of opium, (*extractum opii vel extr: opii aquosi*,) a watery solution, evaporated: administered in all cases where opium is useful, and attended with less subsequent nervous derangement, than the crude substance; it is well suited for children, and individuals of irritable temperament: dose, gr: ss to gr: v, in pills. Pills of Spanish soap with opium, (*P. saponis cum opio*,) gr: v, containing gr: i of opium. Compound powder of chalk with opium, (*pulvis crtæ comp: cum opio*,) anodyne and absorbent, \mathfrak{D} i to \mathfrak{D} ij for adults—gr: v to x for children. Compound powder of ipecacuanha (*pulvis ipecacuanhæ comp.*) See

Dover's powder. Tincture of opium or laudanum; for the same purposes as the drug, in doses of from ℞ to xl or more. Camphorated tincture of opium or paregoric anodyne, ʒi to ʒij in catarrh, chronic asthma, and pertussis after the inflammatory symptoms have subsided: for children ℞v to x in almond mixture.

The researches of the French chemists in the minute analysis of opium, have been productive of very important results, in the discovery of the essential principles upon which its peculiar qualities depended,—opium, then, consists of rosin, gum, bitter extractive matter, sulphate of lime, gluten, narcotine an azotised substance, and a peculiar alkaline body, termed morphia; in addition to these component parts, an acid of unknown properties has also been discovered termed the meconic, so that the narcotic principle of opium is morphia in the state of a meconiate, or perhaps of a super-meconiate. Of these separate substances, morphia or morphine and narcotine have been obtained in separate portions, and the former specifically employed in medicine. Under further experiment, morphine yields several salts. An acetate and sulphate, obtained by combination of the morphine with the respective acids, and formed into syrups, gr: iv to ʒxvj, of which from ℞v to xx may be administered every three hours until rest is procured. A solution of morphine is also prepared, by the addition of gr: xvi to ʒi of distilled water, of which from vi to xx drops may be considered a dose. Narcotine has scarcely yet met with a fair medicinal trial; but from the experiments of M. Magendie upon animals, it produces a peculiar drowsiness and stupor distinct from sleep, and when given in considerable quantity, a fatal effect. The symptoms occasioned were in every instance greatly modified by its combination with acetic acid.

OPODELDOC.—A camphorated soap liniment, well known as an empirical preparation.

ORANGE PEEL, (*Aurantii Cortex.*)—The rind of the citrus aurantium, or Seville orange, a tree of the class polyadelphia, and order ieosandria. Aromatic and stomachic. Used as an adjunct in several officinal preparations. The juice of the Seville orange is frequently prescribed in febrile and inflammatory complaints, and in scurvy.

ORCHITIS, (from *ορχις*, a testicle.)—Hernia humoralis, or swelled testicle.—See *Testicle*, diseases of.

ORCHOTOMIA, (from *ορχις*, a testicle, and *τεμνω*, to cut.)—The operation of extirpating a testicle.—See *Testicle*.

ORTHOPNŒA, (from *ορθος*, erect, and *πνοη*, breathing.)—Laborious breathing, during which the patient is compelled to assume the erect position. The common symptom in asthma, diseases of the lungs, and other affections.

OSCHEOCELE, (from *οσχέου*, the scrotum, and *κύλγ*, a tumour.)—Scrotal hernia.—See *Hernia*.

OTITIS, (from *οὖς*, the ear.)—Inflammation of the internal ear.—See *Deafness*.

OXYMEL, (from *οξύς*, acid, and *μέλι*, honey.)—The mixture of honey and vinegar, boiled to a syrup. Sometimes administered as a gentle aperient and expectorant in humoral asthma, and diseases of the chest, but more commonly used as the vehicle for squill and colchicum.—See those substances.

OZÆNA, (from *οἶζ*, a stench.)—An ulcer situated in the nose, discharging a fœtid purulent matter, and sometimes accompanied with caries of the bones. It commences with a slight tumefaction and redness about the ala nasi, accompanied with a discharge of mucus from the nostrils. The matter at length becomes purulent, is most copious in the morning, and is sometimes attended with sneezing and slight bleeding. The ulceration occasionally extends round the ala nasi to the cheek, but seldom far from the nose, nor does it often destroy the ala of that organ. Ozæna is often connected with scrofulous and venereal complaints, and in the latter, portions of the spongy bones will often come away. It occurs also as a symptom of the cachexia syphiloidea, and may perforate the septum nasi, destroy the spongy bones altogether, and even the nasal bones.

The *treatment* of this disease must be adapted, in the first place, to a removal of the constitutional affection, acting as its remote cause. The preparations of mercury and antimony, the muriates of barytes and lime, sarsaparilla, the elm and Peruvian barks, have all been recommended. Sea baths may also be attended with great advantage. The usual external applications are the preparations of copper, zinc, arsenic, mercury, and the dilute sulphuric acid. It may be necessary to state, that there is often a resemblance between ozæna and ill conditioned sores of the antrum, as well as abscesses of the jaw-bone. An accurate examination can, however, scarcely fail in detecting the nature of the disease.—See Pearson's *Principles of Surgery*, S. Cooper's and Potts's works.

PALSY, *Paralysis*, (from *παραλύνω*, to weaken.)—A disease characterized by a loss or diminution of the power of voluntary motion, affecting various parts of the body, and generally attended with drowsiness and stupor. There are four distinct species of this affection. 1. *Paralysis partialis*, in which some particular muscle is paralysed. 2. *Paralysis hemiplegica*, or palsy of one side longitudinally. 3. *Paralysis paraplegica*, palsy of one half of the body, taken transversely, as both legs and thighs. And 4. *Paralysis venerata*, when arising from the sedative effects of poisons.

Palsy is also in some cases symptomatic of other diseases, as worms, scrofula, phthisis, &c. The common *causes* of apoplexy are usually asserted to be those of palsy; and considering how frequently palsy occurs as a sequel of apoplexy, the assertion has much to support it; for compression is here also, as well as in apoplexy, a very frequent cause. Yet as compression does not seem to be the only cause of apoplexy, it is still less so of palsy in its modifications, and we shall still more frequently have to resolve the disease into some of those causes of general, and especially of nervous debility, which occasionally give rise to apoplexy.

Palsy is often preceded by many of the precursive signs of apoplexy, and it commonly commences slowly and insidiously; a single limb, or a part of the body being at first troubled with an occasional sense of weakness or numbness, which continues for a short time, and then disappears. A single finger is often subject to this token, as is one of the eyes, the tongue, or one side of the face. The nerves chiefly affected are those subservient to voluntary motion, but the accompanying nerves of feeling in most cases participate in the torpitude, though not in an equal degree, and sometimes not at all.

The action of the involuntary organs, and especially of the heart and lungs, is but little interfered with, though in a few instances they are more languid, than in a state of ordinary health. And in this respect, a considerable difference is perceived between paralysis and apoplexy, in which last the heart appears to be always oppressed, and the breathing laborious.

It has been sometimes observed, that where any one of the external senses is peculiarly obtuse or deficient, the rest are often found in a more than ordinary degree of vigour and acuteness: "as though the sensorial power were primarily derived from a common source, and the proportions belonging to the organ whose outlet is invalid, were distributed among the other organs."

Something of this law seems to operate in many cases of palsy, and is more and more conspicuous in proportion to the extent of the disease; for, in hemiplegia and paraplegia, the half of the body that is unaffected has not unfrequently evinced a morbid increase of feeling.

It is the general opinion, that paralytic limbs are uniformly colder than in a state of health; and Mr. Henry Earle has ably supported this opinion upon an extensive scale of examination. Dr. Abercrombie, on the contrary, in a correspondence on this subject with Dr. Cooke, gives it as his opinion, that paralytic parts do not become colder than natural; and adds, "that he had long ago observed, that they are sometimes warmer than sound limbs, but without being able to account for it."

Hemiplegia is far most frequently met with as a sequel of apoplexy, and especially of atonic apoplexy, or that in which the energy of the nervous system is peculiarly diminished and irregular. The usual exciting causes of apoplexy are in consequence those of palsy, and need not be here enumerated. In a few instances, however, hemiplegia occurs without preceding apoplexy; and hence distinctly proves, that pressure, or at least such a pressure as is demanded to produce somnolency, is not essentially necessary.

One of the most frequent causes is a debilitated state of the liver; and hence those persons are peculiarly subject to this variety of palsy, who have spent the earlier part of their lives in an habitual course of intemperance.

As apoplexy has its precursive symptoms occasionally, so also has hemiplegia, and particularly when it is connected with a plethoric habit; for in this case, the veins of the neck and face often appear turgid, there is an obtuse pain in the head, the tongue moves with some difficulty, and particularly on one side, the perception and memory become impaired, and the patient feels a tendency to drivel at one corner of the mouth, rather than at the other. The onset, like that of apoplexy, is at last sudden; and if the patient be standing, he drops down abruptly on the affected side.

The progress of the disease is uncertain, and depends very much upon the state of the nervous system at the time of the attack. If there be no chronic debility, nor other morbid condition of the sensorium, the patient will sometimes recover entirely in a week, or even less; but if this system, or some particular part of it, be in an infirm state, he recovers only imperfectly, and obtains, perhaps, a thorough or a limited use of the lower limb, while the upper remains immoveable.

Paraplegia has generally been conceived to depend altogether upon a diseased affection of the spine in its bones, ligaments, or interior, most frequently in the region of the loins; in consequence of which the spinal marrow becomes pressed upon, or otherwise injured, independently of any complaint of the brain. That this is a common cause, is unquestionable, and a cause that often operates long without external signs; for the vertebral extension of the dura mater may be thickened, or a serous fluid effused, or blood be extravasated within the vertebral cavity, or a tumour may be formed in some part of it, or the spinal marrow itself may undergo some morbid change. But the best practical observers of the present day concur in opinion that paraplegia, like hemiplegia, is produced still more frequently by causes operating on the brain, than confined to the spine.

This form of paralysis may take place at any age, but it is more frequent beyond the middle of life; and Dr. Baillie has observed, that

it occurs oftener in men than in women, for which it is by no means difficult to account, considering the greater hurry and activity of life pursued by the former. The disease, in many instances, makes an insidious approach. There is at first nothing more than a slight numbness in the lower limbs, with an appearance of stiffness or awkwardness in the motion of the muscles; these symptoms increase by degrees; there is great difficulty in walking, and an inability in preserving a balance; and the urine is found to flow in a feeble stream, or perhaps involuntary. The bowels are at first always costive; but as the sphincter loses its power of constriction, the motions at length pass off involuntarily. The disease may continue for years, and the patient at last sink from general exhaustion. It sometimes, but rarely, terminates in a recovery.

Partial or local palsy is often produced by the general causes of the other varieties, probably operating in a less degree or more partially on the brain. It frequently takes the lead of the general affection, and appears for some days or weeks antecedently, in an imperfect movement of the tongue, or of one eye, or of one side of the mouth, sometimes of one or more of the fingers, or of an entire arm; and if, in this incipient state of the disease, proper evacuants, or other means, be instantly had recourse to, the paralytic tendency may be subdued, and the complaint be limited to these local affections, and in a few days entirely removed.

This variety, however, is often the effect of other causes tending to destroy the irritability of the nervous system, or particular parts of it, such as exposure to certain metallic fumes, or other means of absorbing metallic particles, especially those of mercury and lead; and above all, exposure to keen blasts of cold and damp-air. This last is, perhaps, the most common and effective cause of local palsy, and is peculiarly operative when the limb or organ so exposed is in a state of relaxation and perspirable moisture, whether from previous exercise or great heat of the atmosphere. A palsy on one side of the mouth, of the muscles of one eye, of one of the cheeks, of an arm or a leg, is in this manner frequently produced, and becomes, at times, of very great obstinacy. Occasionally, indeed, the torpidity extends much further than to a single limb, and various organs are involved in its mischief.

Treatment.—Generally speaking, in hemiplegia, and very frequently in paraplegia, and even in local palsy, the causes of apoplexy are those of the present affection. And as, of these causes, compression of the brain has appeared to be by far the most frequent in the former disease, so it ought to be regarded, and will generally be found in the latter. And hence, copious bleeding, and purgatives recommend themselves, from the good effects known to be produced by them in apoplexy. —

In treating of apoplexy, we have noticed it as dependent on two very different states of the constitution; an entonic and an atonic. And the same diversities of constitution are to be found in paralysis. Under the entonic state, there can be no question, and there ought to be no exception; and the boldness of the practice should be regulated by the nature of the exciting cause.

Even in atonic apoplexy, it has been observed that venesection is occasionally necessary; and it may be equally necessary in atonic paralysis; for here also effusion may take place both of blood and serum: of serum, more frequently from deficiency than from excess of vigour; and of blood, from a debilitated state of the vessels, and their greater facility to be ruptured from slight causes, as a violent fit of coughing, or sneezing, of joy, or terror.

Thus far bleeding may be allowed, and, indeed, ought to be imperatively enjoined. But there are some cases in which it is altogether a venture, and others in which it is considered on all hands to be injurious.

In purging, we may proceed with less restraint; for even in debilitated and dropsical habits, stimulating the bowels is almost uniformly beneficial. Should there be serous, or even sanguineous effusion, absorption is hereby powerfully promoted; and if there be none, a beneficial revulsion will often be produced, and the stimulus will always be useful. In a very debilitated state of the constitution, however, we should choose the warmer in preference to the colder purgatives; and hence, jalap, colocynth, or even aloes, in preference to neutral salts; and it will also be serviceable to combine them with some distilled water, impregnated with an essential oil, as mint, pennyroyal, juniper, or rosemary. Stimulants, both external and internal, have been carried to a great extent, but with doubtful efficacy.

The patient should be kept as still as possible, in a warm commodious bed, and a well ventilated room. His diet should be plain, with the allowance of a moderate quantity of wine, or wine and water. Camphor, musk, valerian, and other warm sedatives, as ammonia neutralized with citric acid, are here to be chiefly resorted to, and to these may be added the less stimulant metallic salts, and especially those of zinc and bismuth. The warm bath may be allowed two or three times a week, and if the nights be restless, the inquietude may be subdued by hyoscyamus. And, as this form of the disease is often connected with great general debility, and a tendency to hypochondriacism or lowness of spirits, cheerful and exhilarating conversation, and such occasional exercise in a carriage as may be indulged in without fatigue, will form very serviceable auxiliaries.

PANNUS, (*pannus*, a rag.)—The union of several pterygia of diffe-

rent sizes, occurring in the same eye, with their points directed towards the centre of the cornea.—See *Pterygium* in *Eye*, diseases of.

PARACENTESIS, (from *παρακεντεω*, to pierce through.)—The operation of tapping the abdomen in dropsy.—See *Dropsy*.

PARAPHIMOSIS, (from *παρα*, back, and *φιμωω*, to bridle.)—A condition of the prepuce, in which it is drawn behind the glans penis, and cannot be again brought forward. It may proceed from the prepuce, when very small, being drawn behind the glans, and allowed to remain until irritation and subsequent swelling occur, when constriction is immediately formed; or it may be occasioned by the venereal disease, with chancres in the prepuce, and producing sufficient inflammation to produce the same results. The removal of the stricture must always be effected, since mortification would soon follow between the stricture and the glans. This we are sometimes able to accomplish by compressing with the fingers all the blood out of the swelled glans, so as to allow the constricting prepuce to be restored to its proper situation. The use of cold applications will frequently render this method completely successful, immersing the penis in cold or ice water for some minutes before the attempt is made. We are, however, frequently compelled to operate for the relief of the stricture, and this is performed, although with considerable difficulty, from the swelling on each side of the stricture covering the tightened part. The best mode is to separate the two swellings as much as possible, so as to expose the constriction, and then to pass a crooked pointed bistoury beneath, and divide it; taking care not to cut the swollen skin on either side. The prepuce may then be brought forward, unless, as in the case of the venereal disease, it is thought adviseable to remain for the convenience of dressing the chancres. It is scarcely necessary to mention that immediate attention must be paid to the disease, by which the paraphimosis has been occasioned, in order to prevent the possibility of its re-occurrence.

PAREGORIC ELIXIR.—The camphorated tincture of opium, composed of ℥ij of camphor, the same of opium, ℥i of Benzoic acid, and two pints of spirits of wine. ℥i contains about gr: ij of opium. In operation, anodyne, and principally employed in catarrh, chronic asthma, and pertussis. Dose, ℥i to ℥iij, for an adult: for a child, ℥x to xx. in almond mixture.

PARONYCHIA, (from *παρα*, near, and *ονυξ*, the nail.)—*Whitlow*, which sec. *

PAROTID DUCT, *Wounds of*.—See *Fistula salivary*.

PAROTID GLAND, *Extirpation of*.—See *Tumours*.

PARSLEY ROOT, (*Apii Petroselini Radix*.)—The root of the *Apicia Petroselinum*, a biennial plant of the class pentandria, and order monogynia. In operation, aperient and diuretic, and occasionally em-

ployed in nephritic pains and obstructions of urine. Dose—a cup full of the decoction made with ʒij of the sliced root, to two pints of water boiled down to one pint. The seeds of parsley possess aromatic and carminative properties, but are seldom prescribed.

PECTORALS, (from *pectus*, the breast.)—Such medicines as soften and allay tickling coughs, and irritation of the fauces; as, oils of almonds and olives, spermaceti, linseed, honey, and liquorice; gums, acacia and tragacanth, balsam of tolu, &c.

PELAGRA, (*Elephantiasis Italica*.)—A peculiar disease, prevalent in certain districts, as Padua and Milan in Italy, where it is computed to attack five inhabitants out of every hundred. It usually commences about the months of March or April, by the appearance of a shining red spot on the back of the hand, somewhat resembling erysipelas; this soon increases, elevating the skin a little, and producing numerous small tubercles of different colours; the skin becomes dry, and cracks, and at length falls off in white scales, the redness of the skin underneath still continuing at the approach of winter, during which period no further inconvenience is experienced. The same course is run for perhaps three or four seasons, each attack becoming more violent, until the constitution participates in the disturbance. The patient experiences uneasiness in the head, becomes fearful, dull, and less capable of exertion than heretofore, is easily affected by and impatient under atmospheric change, until at length the powers, both of the body and mind, become enfeebled, and peevishness, watchings, vertigo, and, at length, complete melancholy, supervene. Emaciation and delirium follow, and are soon succeeded by colliquative diarrhœa, convulsions, and death.

It is very uncertain from what cause this fearful disease proceeds; and although it has been supposed by some to proceed from the rays of the sun, whence its occasional name *mal de sole*, we can scarcely admit the assumption, since it is no where else experienced. It perhaps resembles the lepra Asturiensis, described by Sauvages, more than any other affection. Pelagra is not infectious, and has occasionally lasted for fifteen years before it proved fatal.

The *treatment* is as uncertain as the cause, and has only proved effectual when adopted at a distance from the situation favourable for the development of the disease.

PELLITORY, (*Parietaria*.)—A plant, of the class polygamia, and order monœcia, formerly in high estimation as a diuretic, but laid aside in modern practice.

PELLITORY of Spain, (*Anthemis Pyrethrum*.)—Or Spanish chamomile, of the class syngenesia, and order polygamia superflua. The root is stimulant and sialogogue; when chewed, it excites a copious flow of saliva, and hence it has proved useful in swellings of the tonsils, in

toothache, and palsy of the muscles of the throat. It has also been used as a gargle in infusion.

PEMPHIGUS, (from *πενφιξ*, a vesicle.)—See *Cutaneous Diseases*.

PENIS, *amputation of*.—This operation is only necessary in cancerous and some fungous sores. It is performed by making a circular incision through the skin, with a small knife, about a finger's breadth from the sore. The corpora cavernosa being exposed, the body of the penis is to be cut through at one stroke, exactly in a line with the former incision, so that no flap of integument shall remain, as that would impede the flow of urine. It is generally necessary to tie three arteries, one in the body of the penis, and one in each corpus cavernosum. A compress of lint confined with sticking plaster is all the dressing required. Should after hemorrhage come on, cold water, or pressure applied to the stump will probably check it; if not, the bleeding vessel must be secured. Some surgeons place a piece of hollow bougie in the urethra, but this practice is blamed by Mr. Pearson, as both useless and improper.—See Pearson "On Cancer," Hey's Practical Surgery, and Warner's Cases.

PEPPER, (*Piper*.)—A plant, of the class diandria, and order trigynia, embracing a number of varieties, of which the piper cubebs, (see cubebs) the piper longum, and piper nigrum, are employed in medicine.

The Long Pepper, (piper longum,) which is the unripe fruit dried in the sun, is of an aromatic odour and pungent taste, stimulant, carminative, and tonic in operation, in doses of from gr: v to ℥i, in dyspepsia, retrocedent gout, and paralysis. It enters into the composition of the confection of opium, the compound chalk and cinnamon powders, and some of the tinctures.

The Black Pepper, (piper nigrum,) is obtained from the same tree as the last, the difference depending on their preparation and degrees of maturity. It possesses also the same properties, although to a greater extent, and may be given to a similar extent, variously combined.

M. Oerstaedt discovered a new principle in black pepper, termed piperine, and which, upon further analysis by Pelletier, assumed a crystalline form, and bore a considerable analogy to the resins. It was administered in Italy as a febrifuge, and of late years it has been employed in England, France, and this country, as an adjunct to quinine in the treatment of intermittent. It is usually given in one grain doses.

PEPPERMINT.—See *Mint*.

PERICARDITIS, (from *περικαρδιον*, the pericardium.)—Inflammation of the pericardium.—See *Inflammation*.

PERIPNEUMONY, (from *περι*, about, and *πνευμων*, the lung.)—*Inflammation of the lung*, which see.

PERITONITIS, (from *περιτοναί*, the peritonæum.)—An inflammation of that membranc.—See *Viscera*, diseases of.

PERTUSSIS, (from *per*, much, and *tussis*, a cough.)—*The Hooping Cough*, which see.

PESSARY, (*Pessarium*, from *πεςσω*, to soften.)—An instrument deposited in the vagina, for the support of the uterus, in the event of a prolapsus of that organ.—See *Uterus*, for the different kinds of pessaries.

PHAGEDCENA, (from *φαγω*, to eat.)—A spreading and destructive ulcer.—See *Ulcers*.

PHARYNGOTOMY, (from *φαρυγξ*, the pharynx, and *πυνω*, to cut.)—The operation of opening the pharynx.—See *Œsophagotomy*.

PHIMOSIS, (from *φίμος*, a muzzle.)—The closing of the prepuce over the glans penis, so that it cannot be drawn back. The proximate cause is an effusion into, and thickening of the cellular membranc between the two layers of the prepuce, brought on in consequence of inflammation arising from chancre, gonorrhœa, irritation of the matter secreted by the sebaceous follicles under the prepuce, want of cleanliness, and, in a few cases, urinary calculi, which concrete by the urine getting under the prepuce; violent copulation, &c. The inflammation is frequently of the erysipelatous kind, and there is often much œdema. The inflammation often runs on to suppuration and gangrene.

Treatment.—Lecches, saline cathartics, rest, horizontal posture, and, at night, an emollient poultice. Saturnine, and other washes, should be frequently injected under the prepuce with a syringe. If chancres be the cause, we may inject the black or yellow washes, but no attempts should be made to draw back the skin behind the glans, as such would constitute a paraphymosis, except for the removal of sebaceous matter or calculi when these are ascertained to exist. If matter be collected behind the glans, and cannot make its escape, a perforation may be made through the prepuce, through which lotions may be injected. When the chancres cannot be made to heal, or when gangrene is threatened, it is usual to perform the operation for the liberation of the part. This is done by passing a bistoury under the foreskin, and slitting it up in a line with the pubes as far as may be judged proper. But as this leaves two flaps or angles, modern surgeons perform the operation of circumcision, which is effected by drawing the skin forward, and enclosing transversely, with a pair of forceps, as much as may be deemed proper to remove: the surgeon then with one act of the knife, takes off the whole circle, and if the inner layer of the prepuce should still be too tight, it may be slit up with a curved knife. The two layers should then be united with a fine suture. Phimosis is sometimes congenital, and in consequence of inflammation, adhesions may take place between

the prepuce and glans, which may prove very difficult to remove. In the majority of cases, however, congenital phymosis ceases at the age of puberty, and when there is a difficulty, it is usually remedied by a small dilatation, or at the most by the act of circumcision.

PHLEGMASIA DOLENS.—A term inappropriately applied to the swelled leg of women, in the pregnant and puerperal state.—See *Uterus*, diseases and affections of.

PHLEGMON, (from $\phi\lambda\epsilon\gamma\omega$, to burn.)—Healthy inflammation; characterized by its bright red colour, with a throbbing and pointed tumour, tending to suppuration.

PHOSPHORUS, (from $\phi\omega\varsigma$, light, and $\phi\epsilon\rho\omega$, to carry.)—A simple substance, never found pure in nature, and usually procured from bones which have been burnt to whiteness to destroy all their animal matter. In nature, it is always met in union with oxygen, or in the state of phosphoric acid, in which state it is a common product, further combined with different animal, vegetable, and mineral substances.

This substance is rarely employed in medicine, from its highly stimulating properties. There are however some doubts as to its poisonous quality, and if these should be confirmed upon further experiment, the doses at present recommended may be increased without much apprehension. The *phosphate of soda* is one of the mildest neutral salts, and in doses of from $\mathfrak{z}\text{ss}$ to $\mathfrak{z}\text{i}$ as an useful purgative.

PHRENITIS, (from $\phi\rho\eta\nu$, the mind.)—Inflammation of the brain.—See *Inflammation*.

PIITHISIS, (from $\phi\theta\iota\omega$, to consume.)—Pulmonary consumption.—See *Lungs*, diseases of.

PILES.—See *Hæmorrhoids*.

PIMENTO BERRIES.—Pimentæ baccæ, from the myrtus pimentæ, a West Indian tree, of the class icosandria, and order monogynia. In operation, stimulant and carminative, but chiefly employed as an adjunct to other medicines. Dose—gr: v to $\mathfrak{D}\text{j}$.

PINK, *Carolina* or *Indian*.—A perennial plant, of the class pentandria, and order monogynia, the root of which is occasionally employed as an anthelmintic in the expulsion of lumbrici. Its use should be followed by a warm purgative. Dose—gr: x to $\mathfrak{z}\text{ss}$ of the powdered root, every night and morning.

PITYRIASIS, (from $\pi\iota\tau\upsilon\rho\omicron\nu$, bran.)—See *Cutaneous Diseases*.

PLAGUE, (*Pestis*.)—A very putrid and contagious fever, attended with buboes, carbuncles, ptechiæ, &c., indigenous in Turkey, Egypt, and the eastern shores of Africa. McGregor, in his Medical Sketches, observes, that the plague exhibits considerable varieties at different places, and under different circumstances. Thus, when it made its appearance in one part of the army, which he accompanied from India

to Egypt, it exhibited from the outset a low typhoid character; when among those encamped upon marshy ground, an intermittent and remittent; when in the cold, rainy season of December and January, an inflammatory; and that when crossing the isthmus of Suez, and at other places, a mild continued form was obvious. Larrey, who was surgeon in chief to the French army in Egypt at the same period, remarked that the plague was more frequent and formidable during the south winds, but that during the north or north-east winds, it was diminished, or nearly suspended. He observes, also, that men with free suppurations, from wounds or issues, generally escaped infection. Sir Robert Wilson, who was upon the same spot, states that the plague is most prevalent after the recession of the overflowings of the Nile, when a quantity of slimy mud is left upon its banks, the mephitic exhalations from which give rise to the disease in that place. From his statements it would appear, that a moist atmosphere is favourable for its production and propagation, while a dry air evidently had a happier and contrary effect. Febrile moisture, too, according to Sir James McGregor, from the body of an infected person, seem to be a powerful agent in propagating the disease, whilst a dead body did not seem to convey it at all. All authors agree in stating, that oil men, tanners, and soap boilers, rarely if ever imbibed the plague; and that women and children did not so readily become infected as robust men. Persons exposed to vicissitudes of atmosphere, as bakers, cooks, smiths, &c. were particularly liable. The infection seems to enter the system through the lymphatics of the surface; hence, the reason why the lymphatic glands are affected in the form of bubo, and also why dealers in oil resist the infection. Many are of opinion, and among them Sir James McGregor, that the plague is communicated by contact *alone*. At all events, it is fully proved that the contagion extends only to a very short distance from the infected body. Putrid fish or other animal substance, damaged grain, uncleanness, noxious exhalations, &c. will also engender the disease in climates favourable to its production; and infected clothes, merchandize, &c. will convey the disease to climates which do not produce it naturally, and thus spread the disease among the inhabitants.

Several species of plague are sometimes enumerated, but Sir Brook Faulkner, who had much experience at Malta, a few years ago, admits of only three, and thus details the symptoms.

Of the first species.—Rigors, pain in the back, coma, slow drawling or interrupted utterance; the tongue white, but not loaded, and usually clean towards the centre and apex; the anxiety great, the countenance pale, the stomach extremely irritable, and the strength much impaired. This was *observed* to be the most fatal species, and the patients often died in a few hours from the attack with petechiæ.

Of the second species.—Here the state of the brain and nerves is the reverse of the former, there being a high degree of excitement, pain in the head, thirst, flushed countenance, and hurried utterance. Pain in the back and rigors in the outset, and epistaxis is not unfrequent. Glandular swellings come out tardily, and recede without any remission of the symptoms. Carbuncles arise in different parts of the body, and soon become gangrenous. Severe and constant delirium, and death takes place in two or three days, though sometimes not until the seventh. This species is very numerous, and nearly as fatal as the preceding. In some patients there is an appearance of despair and horror in the countenance that baffles all description.

Of the third species.—This resembles the second, but the symptoms are mild and the brain but little affected. Buboës and other tumours appear and rapidly proceed to suppuration, and, with proper treatment, the patient generally survives. The earlier buboës appear, and the sooner they suppurate the fairer is the prospect. Cases without buboës are always dangerous, and also when petechiæ, hemorrhage, and diarrhœa are present. When buboës do not adhere at their bases, it is regarded as a favourable symptom.

Treatment.—Upon the very first indications of the disease, an emetic should be administered, arresting the vomiting, however, with the effervescent draught and opium, if it operate too strongly. Gentle laxatives should next be administered, and, should purging prove too severe, or diarrhœa at any time supervene, it must be checked with opium, kino, and other astringents. Gentle diaphoretics next become proper. Camphor is likewise much recommended, and likewise opium, to allay irritation and produce sleep. The cold affusion is also advised. Most writers have given their opinion against bleeding, but Dr. Armstrong considers it a disease of excitement and congestion, and urges the practice. If a crisis take place, bark may be liberally given to prevent a relapse. When putrescency occurs, antiseptics should be used as in typhus gravior. Salivation has sometimes been found useful. The buboës and carbuncles should be brought forward by all possible means, by fomentations and poultices.

Inoculation for the plague has been resorted to, with a view to render the disease milder; but from the experiments which have been made, and from the same persons being liable to more attacks than one, its utility is certainly very questionable.

All persons employed about the sick should avoid placing themselves where a stream of air may blow the effluvia from the patient; they should seldom come in contact with them, pay strict regard to cleanliness, both of their persons and clothes, and remove from the apartments all matter likely to become putrid. An oiled silk dress is described

as an armour in plague, by Sir Brook Faulkner. The linen should be daily changed, and temperance be strictly observed. Imbuing the linen with salt water before wearing is recommended, and also olive oil rubbed over the body. Should the disease be unfortunately imported into a healthy country, all infected persons should be conveyed to a lazaretto, and guards placed around to prevent communication. In a paper read before the Royal Society of London, January, 1816, it appeared, after many experiments, that the best method of disinfecting letters, &c. is to expose them to the fumes of burning sulphur, mixed with the nitrate of potass.

PLEURITIS, (from *πλευρα*, the pleura.)—Pleurisy, or inflammation of the pleura.—See *Lungs*, diseases of.

PLICA POLONICA, (from *plico*, to entangle.)—A disease of the hair, almost peculiar to the inhabitants of Poland.—See *Hair*, diseases of.

PNEUMONIA, (from *πνευμων*, a lung.)—Inflammation of the lungs.—See *Lungs*, diseases of.

PODAGRA, (from *πους*, the foot, and *αγρα*, a seizure.)—The gout, which see.

POLYPI.—These are organized fleshy excrescences, of a pyramidal shape, growing by a thin pedicle or root, from mucous membranes, as the nose, arteries, vagina, meatus auditorius, rectum, antrum, pharynx, &c.

POLYPI OF THE NOSE.—These are the most frequent, and consist of three different species. 1st, the *fleshy polypus*, which is a red, soft, sensible, healthy looking tumour, free from pain, and the mildest of the whole species. 2d, the *malignant polypus*, which is hardy, scirrhus, and painful, bleeds profusely on slight causes, attended with pain in the forehead, and at the root of the nose, and in time proceeds to cancerous ulceration. 3d, *Polypus of the mucous membrane of the nostril*, which is tough, of a pale colour, and exuding a viscid secretion from its surface. It is a mere elongation of the schneiderian membrane, caused by frequent colds; indeed, the whole membrane of the nose is sometimes so relaxed and thickened as to obliterate its cavities. There are other species of polypi mentioned by authors, as the soft, brittle, and vesicular or hydrated, &c. Mr. John Bell doubts the existence of malignant polypi, and supposes them all essentially alike, and that the pain, caries, ulceration, &c. are the effects of pressure and detention. A polypus has but one root originally, though it may have adhesions from inflammation.

Symptoms.—At first a slight obstruction of one nostril occurs, which always increases in damp weather. This is attributed to a cold in the head; but the tumour growing, soon permanently obstructs the

passage, and at length protrudes forwards and becomes visible in the nostril ; it often extends backwards to the throat, increasing to such an extent as to impede respiration and deglutition. Anteriorly it increases in size, often bleeds profusely, sometimes causes fistula lachrymalis from its pressure on the nasal duct, produces hideous deformity, and at length, ulceration, caries, and death.

Treatment.—It is difficult to credit the accounts of cures said to have been accomplished by injecting a strong solution of sal ammoniac and other articles. They may, however, have been useful in constricting the thickened and relaxed schneiderian membrane. But in true polypi, extraction is the only efficacious remedy, far preferable, indeed, to caustic or ligature. In extracting a nasal polypus, two objects must be kept in view : first, to reach and apply the forceps to its root ; and secondly, to effect its removal, by gently pulling and twisting it off, rather than by dragging it directly out. After desiring the patient to propel the tumour as much as possible into the nostril by blowing strongly through it, with a common pair of forceps we should lay hold of its body, and slowly and gently draw it forth, by which it is elongated, and room made in the nostril for the introduction of the polypus forceps. These should next be introduced, carried up to the root of the polypus, and the tumour then be extracted by twisting as above described. When, however, the root is beyond our reach, we must be content to seize it as high up as possible. Should it unfortunately give way at that part, the hemorrhage will probably be profuse ; in such a case, the remedy is to immediately seize the remaining portion and extract. If, however, hemorrhage ensue when the tumour is removed from its root, which is not probable, particularly if it have been twisted off in the manner recommended, it may be checked by injecting ice-cold water, or by applying a piece of lint saturated with a strong solution of sulphate of zinc, rolled round the end of a probe, and pressed steadily against the bleeding surface. Should the blood flow down the throat, a plug must be applied through the fauces, as in epistaxis. Polypi are very apt to recur, particularly when not detached at their roots, rendering a repetition of the operation necessary. There are sometimes more polypi than one, when all must be extracted. Sometimes a polypus presents itself behind the soft palate in the throat. In such cases it is better to extract it in that direction by means of a curved pair of forceps carried through the mouth. In some instances, a polypus is so large as to present itself anteriorly in the nostril and posteriorly in the throat, at the same time. Under these circumstances it is better to extract the nasal portion first, which often so loosens the posterior part that its removal is rendered comparatively easy. But, perhaps, applying a pair of forceps to each portion at the same time, and pulling alternately, ante-

riorly and posteriorly until detached, is a better mode. When the polypus bleeds freely on being touched, some, dreading the hemorrhage that may ensue by extraction, prefer using a ligature of silver wire, conveyed over the tumour by means of a double canula, and tightened every day until it sloughs off; but the plan has certainly many objections. When the debilitated condition of the patient will not bear any loss of blood, and the necessity of removing the polypus is urgent, Mr. S. Cooper thinks that cautery may, in this single instance, be admissible. For this purpose, a heated trochar is to be introduced through a canula into the middle of the tumour. Inflammation, suppuration, and mortification follows, and the whole mass is thrown off. Injections of alum, &c. may be frequently thrown into the nostril when suppuration begins. In very hard polypi, which cannot be twisted off, the knife is generally resorted to, though it is apt to be followed by profuse hemorrhage. Sometimes a part may be cut off, to make room for the application of a ligature. Polypi of the schneiderian membrane are often reduced by astringent injections of alum, muriate of ammonia, &c. When the nasal passages are obstructed by a general thickening of the membrane, catgut and small bougies should be daily used to remove it. All authors agree in the propriety of extracting polypi of the first species, or those of a pale greyish or light brown colour, which diminish and increase with the changes of weather, and are without adhesions except at their roots. On the contrary, we are advised not to extract those which are undiminishable in dry weather, those immovable in the nostril from adhesions, and those attended with a fetid discharge. The danger apprehended to result from the extraction of these kinds are represented to be profuse hemorrhage, and a tendency to excite into action a latent carcinoma. But Mr. S. Cooper is decidedly of opinion with Ritcher, that these circumstances are not adequate causes for leaving the disease to itself, and therefore proceeds against all polypi with equal rigour.

POLYPI OF THE UTERUS.—These grow, 1st, from the fundus uteri, (the most frequent); 2d, from the inside of its cervix; 3d, at the edge of the os uteri, (the least frequent.) They are pyramidal, with a thin pedicle, and are of the fleshy kind, being rarely scirrhus or malignant.

Symptoms.—A polypus growing from the fundus uteri distends the organ and increases the size of the abdomen; its growth is slow, the menses proceed regularly, although sometimes they are more profuse. If pregnancy occur, parturition is apt to be premature. After some time, and a considerable growth of the polypus, it is expelled from the uterus into the vagina, and sometimes by pains resembling those of labour. It now grows rapidly, and by its pressure, deranges the functions of the bladder and rectum. Its neck being constricted by the os

uteri, the return of blood is impeded, and turgescence of its vessels ensues; these vessels, either spontaneously, or by walking, riding, or other motions, are ruptured, and a profuse hemorrhage follows. Repetitions of flooding, and a constant discharge of a mucous and aqueous fluid, induces great debility. At length the tumour is expelled from the vagina, and appears at the external parts, keeping up the same symptoms, and producing also inversion, and prolapsus of the womb. Ulcerations now frequently occur upon its surface, from friction and the excoriation of urine. Hemorrhages continue. The other two species differ but little; they are however not attended with hemorrhage, and produce prolapsus, but not inversion of the uterus. It is distinguished from pregnancy by the want of a regular progressive enlargement of the abdomen, quickening, enlargement of the breasts, and by the continuance of the menses; from prolapsus uteri, by not perceiving the os uteri, and its sensibility, and by the polypus being of a pear-like form; from inversion of the womb, by the absence of labour, (when inversion generally happens,) and by the presence of a circular fold at the upper part of the tumour, which is the os uteri; moreover, a probe can be passed up into the vagina by the side of the tumour, but not so in inversion. Uterine polypi are not so apt to recur, when removed, as the nasal.

Treatment.—In a few cases, when the pedicle is quite thin, a uterine polypus may be twisted off, though generally the ligature applied with a double canula is the proper remedy. The ligature should be tightened every two or three days, until the tumour drops off, and irritation kept down by bleeding and purging, and slight astringent injections, as infusion of chamomile, solution of alum, &c. It is obvious that nothing can be done until the tumour escapes from the uterus into the vagina. The sudden expulsion of the tumour from the uterus has in a few instances inverted the latter. In such cases, a ligature should be applied tight around its pedicle, and the tumour amputated below. The inverted uterus should then be reduced. Polypi, or excrescences of the vagina, are to be treated with the ligature. The membrane lining the vagina, or rather the rugæ, is subject to a relaxation and elongation, analogous to that of the schneiderian membrane in the third species of nasal polypi. If it do not yield to astringents, as alum, zinc, copper, &c. the ligature must be resorted to.

Polypus in the œsophagus renders deglutition difficult, and when of a large size, impracticable. When it is situated far down, its removal is, of course, out of the question, and an operation by ligature is, in fact, only to be performed when it is situated in the upper part of the œsophagus.

POMEGRANATE.—The fruit of the *punica granatum*, a tree of the class icosandria, and order monogynia, the rind and flowers of which are occasionally employed as astringents.

POMPHOLYX, (from *πομφος*, a vesicle.)—See *Cutaneous Diseases*.

POPPY, *Papaver*.—An annual plant, of the class polyandria, and order monogynia, having several varieties, the principal of which is the *papaver somniferum*, yielding the *opium*, employed in medicine.—See *Opium*.

PORRIGO, (*a porrigendo*, from its spreading abroad.)—The scald head.—See *Cutaneous Diseases*.

POTASS, (so called from the pots or vessels in which it was first made.)—One of the vegetable fixed alkalies, existing in considerable quantity in land vegetables, and obtained from the ashes which remain after their combustion. Pure potass is of a white colour, extremely deliquescent, soluble in less than its own weight of water, and is fused at about a red heat. Its solution has an acrid taste, and corrodes animal and vegetable substances. With the oils, it forms soaps of a soft consistence; dissolves resinous substances, many of the common metallic oxides, and turns the vegetable blues to green. With the acids it forms neutral salts, which are soluble, and in general crystallizable. Sir Humphry Davy discovered the metallic base of this alkali, by exposing fused potass to the action of a powerful galvanic battery, when *potassium*, as he denominated it, appeared in small globules at the negative pole, while oxygen was disengaged at the positive pole. It was afterwards prepared by a less elaborate process for the service of chemical experiment.

Several salts of potass are employed in medicine, as well as the *fused* or *caustic potass*, which is prepared by evaporating the solution of the alkali to dryness in an open vessel. It is generally run into little cylindrical moulds, which must be preserved in well corked phials. It is powerfully escharotic, and is principally employed in the formation of issues, and as an occasional application to fungous or indolent ulcers.

The *Acetate of potass*, prepared from the subcarbonate by the addition of a sufficient quantity of acetic acid, to neutralize the alkali, is mildly cathartic, diuretic, and deobstruent in operation, administered in febrile diseases, dropsies, icterus, and visceral obstructions, in doses of from ℥j to ℥i, and when required as a purgative, ℥iij.

The *Carbonate of potass*, prepared by passing carbonic acid through a solution of potass, until it is saturated. Diuretic, antacid, and deobstruent. Employed in dropsies, acidities of the primæ viæ, and glandular obstructions. Dose, gr: x to ʒss, largely diluted; ℥i dis-

solved in ℥viij of water, and mixed with ℥iv of lemon juice, forms agreeable salinc draughts.

The *subcarbonate of potass* differs from the preceding, from the alkali not being so completely neutralized in its compound. Its operation and use are similar to the carbonate.

The *nitrate of potass*, saltptre or nitre, is found in an impure state of nature in India, and prepared by means of artificial composts in France. Diuretic and refrigerant. In large doses, purgative. Externally, cooling and detergent. Administered in fevers, dropsies, herpetic eruptions, active hemorrhage, mania, and gonorrhœa. Dose, gr: x to ℥ss, in almond mixture. A small picce allowed to dissolve slowly in the mouth, will often remove incipient cynanche tonsillaris, and it is extensively used in gargles. A large dose will occasion hypercatharsis, bloody stools, and death.

The *sulphate of potass* is procured by adding potass to the bi-sulphate of the alkali which remains after the distillation of nitric acid, from a mixture of nitre and sulphuric acid. Purgative and deobstruent; given in the visceral obstructions of children, and as an adjunct to other purgatives. Dose, ℥i to ℥i, as a deobstruent; ℥ij to ℥vj, as a purgative.

The *sulphuret of potass*, prepared by the intimate union of one part of sulphur with two of the sub-carbonate of potass. Expectorant and diaphoretic. Externally, detergent. It has been recommended in chronic asthma, catarrh, and rheumatism; in gout, herpes, and cutaneous diseases. Its principal use is, however, as an external agent, its solution being eminently serviceable in scabics, tinea capitis, and psoriasis. Dose, gr: v to xv, combined with soap or cicuta, in pills.

The *super-tartrate of potass*, or cream of tartar, the tartar of wine purified. Mildly purgative, refrigerant, and diuretic; administered as a febrifuge, and in ascites proceeding from visceral obstructions, and as an aperient in inflammatory habits. Dose, ℥i to iij, combined with ℥j of borax, when intended as a diuretic; ℥iv to ℥i, as a purgative. The well known drink termed *imperial*, is prepared by dissolving a quantity of this salt in water, with a small quantity of white wine, some sugar, and lemon peel.

The *tartrate of potass* is formed by saturating the excess of acid of the super-tartrate with sub-carbonate of potass. Purgative, in doses of from ℥j to ℥i, in solution, principally employed as an adjunct to senna, and the resinous purgatives, the griping effects of which it corrects.

The *liquor of potass*, (liquoris potassæ,) prepared by the mixture of half a pound of fresh lime, a pound of the sub-carbonate of potass, in a gallon of water. Of considerable reputation as a lithontriptic in uric calculi, and certainly of some service in preventing the formation of uric

acid. It is also antacid, and is useful in lepra vulgaris, psoriasis, and other cutaneous affections. Externally, it is applied when diluted, as a lotion in rachitis and gouty swellings. Dose, ℞ to ℥ss, in chicken broth, or other mild diluent, three or four times a day. When intended to counteract acidity, a bitter may be advantageously united to it.

POULTICE, *Cataplasm*.—A soft pultaceous composition, applied to a part of the body for the purpose of retaining warmth, and relaxing the vessels in a state of inflammation, and also in bringing a phlegmonous swelling to suppuration, and as a derivative.

Several kinds of poultices are employed in medical and surgical treatment.

The *common emollient poultice*, prepared either with bread and water, or linseed meal, is conveniently applied in all common cases of external inflammation.

The *hemlock poultice*, (*cataplasma conii*), prepared by the addition of ℥i of the fresh leaves, to two pints of water boiled to half the quantity, and thickened with linseed meal. This is used as an application to cancerous and scrofulous ulcers, frequently producing great diminution of pain, and improving their appearance.

The *carrot poultice*, (*cataplasma dauci*), formed by bruising the fresh root to a pulp, is employed principally to cleanse cancerous and foul ulcers.

The *fermenting poultice*, (*cataplasma fermenti*).—Mix a pound of flour, and half a pint of yeast; expose it to a gentle heat until the mixture begins to rise. This is an excellent application to sloughing and gangrenous sores, anthrax, &c.

Mustard poultice, (*cataplasma sinapeos*), prepared by the mixture of equal parts of finely ground mustard and linseed meal, and a sufficient quantity of warm vinegar to moisten it. Rubefacient and derivative.

POX.—The term added to several disorders, to denote their eruptive character.—See *Fevers*.

PROBANG.—A flexible piece of whale-bone, with a small sponge fixed to the end, employed in removing foreign substances from the œsophagus. Its end is provided with a string, by which a proper curve can be given, for the purpose of detaching a bone, pin, or other material from the side of the œsophagus. When extraction is impossible, and the substance is not injurious, the probang may be employed in forcing it into the stomach.

PROCIDENTIA, or **PROLAPSUS**, (from *procido*, to fall down).—A relaxation or falling down of any part, such as the rectum, the uterus, or vagina.—See *Anus* and *Uterus*.

PROPHYLACTIC, (from *προ*, and *φυλασσω*, to defend).—This

term is employed in reference to those measures that are made use of in preserving health, and preventing disease.

PROSTRATE GLAND, Diseases of.—See *Urinary Passages*, diseases of.

PRUNES, (*Prunus*.)—The fruit of a tree of the class icosandria, and order monogynia. Emollient, cooling, and laxative. They are advantageously combined with the decoction of senna, and also enter into the composition of the electuary of the same.

PRURIGO, (from *prurio*, to itch.)—A papulous eruption.—See *Cutaneous Diseases*.

PRUSSIC ACID.—See *Acids*.

PSOAS ABSCESS.—See *Lumbar Abscess*.

PSORA, *Ψωρα*, scabies, or itch.

PSORIASIS, (from a similar derivation.) } See *Cutaneous Diseases*.

PTERYGIUM, (*πτερυξ*, a wing.)—A membranous exerescence, growing chiefly on the internal canthus of the eye.—See *Eye*, diseases of.

PTOSIS, (from *πτωω*, to fall.)—An inability of raising the upper eye-lid.—See *Eye*, diseases of.

PTYALISM, (from *πτυαλιζω*, to spit.)—Salivation, or an increase of the secretion of saliva, from the effects of mercury, arsenic, &c., and also occurring as a symptom in some of the eruptive diseases, particularly the small pox.

PULSE, (*Pulsus*.)—The beating of the heart and arteries, influenced indirectly by the general state of the body, but directly by that of the heart or of the arteries, or of both. In an adult male, of good health, the common standard may be fixed at seventy strokes in a minute; but it varies in different individuals, from sixty to eighty, being greatly affected by the temperament, and partly by the habits of life. In the man of high sanguine character, it rarely sinks below eighty, and often rises to ninety; and in the melancholic, it is seldom above sixty, and is even reduced to forty beats in the minute. In women, the pulse is, generally speaking, six or eight strokes in a minute quicker than in men; and hence, women of firm health and a lively disposition, have frequently a standard pulse of eighty-five.

In a weakly frame, the pulse is usually rapid; for debility is almost always accompanied with irritability, and the heart partakes of the general infirmity. In infancy, the pulse is peculiarly quick, and gradually becomes slower as the child increases in strength; and this is accounted for from the feebleness with which the heart contracts, when the ventricle is but imperfectly emptied, and consequently sooner filled again, and sooner stimulated to contraction. The variance of the

pulse under disease, is described under the several maladies to which the system is liable.

PURPURA, (*πορφύρα*, the name of a shell of a purple colour.)—An efflorescence of small purple specks and patches, attended with general debility.—See *Cutaneous Diseases*.

PUSTULE, (*Pustula*, a little pustule, from *pus*, matter.)—An elevation of the cuticle, sometimes globate, sometimes conoidal in its form, and containing pus or lymph, which is in general discoloured.—See *Cutaneous Diseases*.

PUTRID SORE THROAT.—The vulgar name for *Cynanche Maligna*, which see.

PYLORUS, *Stricture of*.—This is generally caused by scirrhus inflammation of the part, following gastritis, the abuse of ardent spirits, &c. The disease may be suspected, when, preceded by a deep seated pain in that part of the stomach, the food is vomited up about three hours after a meal, or at the period, when sufficiently digested, it may be supposed to be passing into the duodenum. This interruption of the proper functions of the stomach, induces dyspepsia; and as the food does not pass into the intestines in sufficient quantities to supply the demands of the lymphatics to convey nutriment to the blood, emaciation ensues. The stricture increasing, its consequences increase also, till the patient is at length destroyed. We can only palliate urgent symptoms, by means of purgative clysters, and by directing a nutriment composed of soup, jellies, arrow root, wine, &c. both by mouth and clysters; exhibiting opium to allay pain; abating thirst by soda water, saline draughts, &c. Cicuta, and other remedies for scirrhus, may be also tried.—Consult Pemberton and Abercrombie on Diseases of Abdominal Viscera.

PYROSIS, or *Water-brash*.—A discharge of a thin watery, or glairy fluid, from the stomach, with eructations, pain, &c. It is generally complicated with dyspepsia, cardialgia, and gastrodynia, and occurs chiefly to unmarried females, those who suffer from fluor albus, and persons who live upon low or poor diet. It comes on in paroxysms, in the morning, and when the stomach is empty, with pain, and a sense of constriction between the stomach and back. The discharge presently follows, which sometimes tastes acid, but generally insipid, and amounts from half to a pint in quantity, when the fit goes off. It is never fatal, but often obstinate.

Treatment.—The paroxysms may be relieved by opium, musk, ether, smoking tobacco, and other antispasmodics: the stomach and bowels should next be evacuated, followed by chalybeates and tonics, assisted by the application of a blister to the stomach, by frictions, cold bathing, good air, exercise, a diet of animal jellies, soups, wine, and brandy.

Alum, zinc, and other astringents, to brace up the supposed relaxed glands in the stomach, whence the fluid proceeds, have been likewise recommended. The oxide of bismuth, in doses of five grains thrice a day, seems, at present, to enjoy the greatest reputation.

QUARTAN.—A fourth-day ague.—See *Fevers*, intermittent.

QUASSIA, (so named from a slave of the name of Quassi, who first used it with success as a secret remedy in the malignant endemic fevers of Surinam.)—The root of the quassia amara, a tree of the class decandria, and order monogynia, indigenous to the southern Asiatic isles, South America, and the West Indies. It is of a yellow colour, has an astringency, and a bitter principle, which has been separated and termed quassim. It is one of the most powerful bitters employed in medicine, and is of considerable use as a tonic and stomachic, in intermittents, bilious fever, (combined with the neutral salts) in lientaria, in hysteria, (united with the tincture of valerian) and in gout, (with chalk-powder and ginger.) Dose, gr: v to 3ss of the raspings of the root. Of the infusion, made by macerating 3ss of the wood in half a pint of water. $\mathfrak{z}\text{i}$ to $\mathfrak{z}\text{iv}$, twice or three times a day.

QUINCY.—See *Cynanche*.

QUOTIDIAN.—A daily ague.—See *Fevers*, intermittent.

RABIES, (from *rabio*, to be mad.)—See *Hydrophobia*.

RANULA.—This is a swelling upon one side of the tongue, generally from the size of a pea to that of a walnut, though occasionally much larger. It contains a glairy fluid resembling the white of an egg, pus, or calcareous matter, caused by obstruction of the excretory duct, of the submaxillary, or sublingual glands. It impedes the offices of speech and deglutition, is not attended with much pain, and occasionally bursts spontaneously.

Treatment.—English surgeons generally lay open the tumour throughout its whole extent with a scalpel, and carefully press out its contents. The French sometimes effect the same object with caustics. Cutting away a portion of the anterior part of the sac, is sometimes necessary, to prevent a re-accumulation of the fluid. Common encysted tumours sometimes occur in this situation. It is then proper to extirpate the swelling, when it should be drawn forward with a hook, and carefully detached from its connexions near the ranular artery with the fingers, separating the other parts with a knife or bistoury. The hemorrhage, if any, can be easily arrested by filling the cavity with fine lint, and applying a little brandy, solution of alum, or other styptics. Desault advises the mouth of the duct to be opened with a probe, but it seems too difficult an operation to be generally resorted to.—Consult Mem. de l'Acad. de Chirurgie, tome 3; Encyclopedie Méthodique, Article Grenouillette; S. Cooper's surgical works.

RATTLESNAKE, (*crotalus horridus*.)—Bite of.—See the chart of *Poisons*.

RECLINATION.—A term employed to denote the operation of turning a cataract, so as to change the position of its anterior and posterior surfaces.—See *Cataract*, in *Eyc*, diseases of.

REFRIGERANT, (from *refrigero*, to cool.)—That class of remedies designed to act in cooling the system internally and externally, by the abstraction of heat. The neutral salts, the fixed alkalies, spirit and acetous lotions, are of this character.

REMITTENT, (from *remitto*, to lessen.)—This term is applied to any disease, where the symptoms abate for a time, without however wholly ceasing, and return again in their primary form.—See *Fevers*, remittent.

REPELLENTS, (from *repello*, to drive back.)—Those applications which cause diseases to recede or disappear from the surface of the body. The preparations of lead, for instance, are termed repellent, when they are employed against eruptions.

RESIN, (*Resina*.)—A solid inflammable substance, of vegetable origin, soluble in alcohol and the oils, but not in water. It is obtained chiefly either by spontaneous exudation, or from incisions made into the bark of the tree affording it. Two varieties are employed in medicine.

White Resin, (*resina alba*,) procured from the *pinus sylvestris*, stimulant, diuretic, and rubefacient, but rarely employed except in the formation of ointments and plasters.

Yellow Resin, (*resina flava*,) likewise used merely for the same purposes.

RESOLVENTS, (from *resolvo*, to unloose.)—Those substances used in surgery to discuss inflammations, and disperse tumours; such as mineral plasters, mercurial ointment, muriate of ammonia, and sometimes poultices and inflammations.

RETENTION OF URINE, THE MENSES, THE MECONIUM, &c.—See *Urinary Passages*, diseases of; *Uterus*, and *Meconium*.

RETROCEDENT, (*retrocedens*, retrograding.)—A term applied to a disease that moves from one part to another. Gout and rheumatism are of this class of diseases.

RETROVERSION, (*retroversio*.)—See *Uterus*, retroversion of.

RHEUMATISM, (*rheumatismus*.)—There are two varieties of this disease, the *acute* and *chronic*; the former, accompanied by fever, inflammation, and acute pain; the latter, distinguished by pain without such accompaniments. The *causes* are various, and generally called into action during the spring and autumnal seasons, and in the period of life from puberty to the age of fifty. There occasionally appears a predisposition to the disease, usually recognized in individuals of a spare

and delicate frame. The variations of temperature, exposure to cold and wet, suppressed perspiration, and irregularity of diet, may also be regarded as disposing to rheumatic attack. The proximate cause has been supposed by some authors to consist in an inflammation of tendinous expansions, or aponeuroses covering the muscles and ligaments. When it has once attacked, its recurrence is induced by the slightest causes.

Rheumatism may be distinguished from gout, with which it has occasionally been confounded, by the slowness of its approach, and retaining a longer possession of one particular part; by its affecting the larger joints, the smaller ones being generally attacked by gout; by the absence of any premonitory symptoms; and, in confirmed rheumatic habits, by no chalky conerctions appearing. The prognosis is generally favourable, especially when a deposit of lateritious substance is observed in the urine, when an eruption appears on the skin, or on the occurrence of epistaxis. In the worst kinds, as observed in aged and debilitated individuals, the inflammation will sometimes become erysipelatous, the skin of a dark red colour, covered with vesicles, when metastasis to a vital organ usually ensues, and a fatal result is the consequence.

Rheumatism rarely proceeds to any of the common terminations of inflammation, except that of resolution, and this fact induced Dr. Scudamore to regard the disease as one of a specific inflammatory nature. In some rare cases, however, we witness a serous, or rather a gelatinous effusion.

Symptoms of acute rheumatism.—Synocha, with a full, hard pulse, high coloured urine, costiveness, white tongue, restlessness, soon followed by acute pains, tension, and inflammation, in the shoulders, aneles, or other of the larger joints. The pain removes suddenly from one joint to another, leaving all swollen and inflamed, though in a few cases the disease is confined to one or two joints only. In the evening there is a general exacerbation of all the symptoms. The blood drawn, exhibits a remarkable degree of buffiness. There is also profuse sweating over the body, while the joint in pain remains dry. Its tendency to metastasis is remarkable, indeed no muscular part is exempt from its visitations, not even the diaphragm, heart, intestines, intercostal muscles, &c. The disease gradually declines, sometimes degenerating into the chronic form, but rarely proving fatal, excepting the metastasis to some vital part be very sudden and vehement. It may, however, linger on for several weeks.

The *chronic species* is attended with pain, but without fever or inflammation; shifting from one joint to another, but seldom to vital parts; the patient is extremely liable to future attacks, and feels more or less

pain on every approaching change in the weather. Sprains, contusions, fractures, and gun-shot wounds, are frequent causes of this species, but more especially exposure to wet and cold. The joints are often left weak, rigid, œdematous, and sometimes paralytic.

Treatment of the acute species.—The first indication is, to reduce the tone of the vascular system by bleeding, purging, and adopting the antiphlogistic regimen. The second, to diminish the inflammation and lessen the sensibility locally, by leeches, cupping, cold evaporating lotions; and opium, hyoscyamus, digitalis, &c. internally. A common, or resolvent poultice, may be applied at night, to one or more of the most painful joints. Blisters and sudorifics are of doubtful efficacy. The cinchona bark was recommended by Dr. Fordyce in the outset of the attack, and is useful after bleeding and other evacuations, when the activity of the symptoms are somewhat subdued. About this period, compresses and bandages will be useful, as recommended by Dr. Balfour, of Edinburgh; and subsequently liniments. In many cases the digestive functions are disordered; and when this is the case, their regulation must be speedily attended to.

Treatment of the chronic species.—Bleeding is not necessary, unless the pulse be full and accelerated. Stimulating sudorifics, as guaiacum, ammonia, turpentine, mustard seed, &c. may be recommended; and as alteratives, the preparations of mercury, antimony, sulphur, sarsaparilla, &c.; also, camphor and opium, and in obstinate cases, the arsenical solution. Externally, blisters, issues, warm bathing, fomentations, and vapour rubefacients, opiate plasters and liniments, galvanism and electricity, defending the affected parts with flannel or oil skin. The patient should reside in a moderate and dry atmosphere, take bark and other tonics, with wine and nutritious diet when every symptom of inflammation has subsided, at the same time avoiding every source of disturbance to the system. Compressing the large arteries with tourniquets has been found useful; also, compresses, and very tight bandages, as advised by Dr. Balfour.

Lumbago, which attacks the loins, and *sciatica*, the sciatic nerve, are of the nature of chronic rheumatism, and require the same treatment. Caustic issues and blisters may be applied with propriety. The blisters in *sciatica* should be applied to the inside of the thigh, a little above the knee. The vapour bath is also efficacious, and the most convenient form of using it is by means of a boiler, with a tube affixed to it, to convey the steam to the part. In this manner the part may be steamed or fumigated half an hour, daily. Camphor dissolved in ether is a good application; also pouring a kettle of warm water over the part daily. Frictions, with acetic ether, is a common French remedy.—Consult Drs. Scudamore and Balfour on Rheumatism.

RHUBARB, *Rheum*, (from *Rha*, a river in Russia, now called the Wolga, from the banks of which it was brought.)—A perennial plant, of the class *ennecandria*, and order *trigynia*. The root is alone employed in medicine, and is brought in its greatest purity from the Turkish and Barbary states. It is of an aromatic, but rather nauseous odour, and a sub-acrid, bitter, and astringent taste; of a clear yellow colour, and a ragged fracture, displaying white, red, and yellow veins. When chewed, it colours the saliva, and if taken in infusion, the urine of a yellow colour. Its essentials consist of extractive, a volatile odorous matter, on which its virtues principally depend, oxalate of lime and tannin. In operation, rhubarb is purgative, stomachic, and astringent. It is in extensive use in all the common kinds of costiveness, particularly when dependent on relaxation, so common amongst children, and in diarrhœa. As an adjunct to the neutral salts and calomel, it renders their operation more easy. Dose, \mathfrak{z} i to \mathfrak{z} ss, as a cathartic; gr: \mathfrak{v} j to \mathfrak{x} as a stomachic and astringent. Externally, the powder of the root is sprinkled over ulcers, to assist their granulation.

Officinal preparations.—Infusion of rhubarb, (*infusum rhei*) \mathfrak{z} i to \mathfrak{iv} , united with the neutral salts; \mathfrak{z} ss with tincture of cinnamon, as a stomachic. Rhubarb wine, (*vinum rhei palmati*) \mathfrak{z} iv to \mathfrak{z} iss; tincture of rhubarb, (*t. rhei*) \mathfrak{z} i to \mathfrak{z} j stomachic, \mathfrak{z} iv to \mathfrak{z} i purgative. A compound tincture is also prepared by the combination of liquorice, ginger, and saffron; also a tincture of rhubarb and aloes, (*t. rhei et aloes*) and a tincture of rhubarb and gentian, (*t. rhei et gentianæ*) which may be given for the same purpose as the common tincture, and in similar doses. Compound rhubarb pill, (*pil. rhei comp.*) of which gr: \mathfrak{x} to \mathfrak{z} i, twice a day, may be given as a laxative in dyspepsia, attended with costiveness.

Rhubarb is *incompatible*, with the solution of isinglass, infusion of yellow cinchona, all the strong acids, nitrate of silver, muriate of mercury, acetate of lead, sulphate of iron, and tartrate of antimony.

RICE, *Oryza*, (from *orez*, Arabian.)—A genus of plants of the class *triandria*, and order *digynia*. This grain, so extensively employed on the East Indian continent and islands, and in the southern parts of America, as an article of food, and used also for culinary purposes, nearly in every country, is frequently of the utmost service in the practice of medicine. It is a valuable article of diet in dysentery and diarrhœa, either prepared with milk, or water, in the form of infusion, and nearly in every case of relaxation of the bowels, it may be supplied with safety and benefit.

RICKETS, *Rachitis*, (from *ραχις*, the spine, from the supposition of its originating in a disease of the spinal marrow.)—See *Bones*, diseases of,

RIGORS.—Sudden chills, attended by shivering and languor, the frequent precursors of fever and inflammatory diseases.

ROCHELLE SALTS.—The common term applied to tartarized soda.—See *Soda*.

ROSE, (*Rosa*.)—A shrub of the class icosandria, and order polygynia, of which three varieties are employed in medicine.

The *Rosa Canina*, or Wild Brier, or Dog Rose Tree, yields the hips that are employed in the well known confection for pharmaceutical purposes.

The *Rosa Centifolia*, or Damask Rose.—A syrup is prepared from the petals, which is an agreeable laxative for children. A confection is likewise made, serving as a useful vehicle for other remedies.

The *Rosa Gallica*, or Red Rose, is the most valuable of the varieties, from the petals possessing considerable astringent qualities. A confection and a syrup are directed in the pharmacopœias, as adjuncts to stomachic infusions in diarrhœa, and also to gargles. A compound infusion is made by the addition of a small quantity of sulphuric acid, which is a valuable remedy in the colliquative sweats of phthisis, in uterine and pulmonary hemorrhages, and as a gargle in cynanche tonsillaris.

ROSEOLA, (from *rosa*, a rose.)—So called, from the colour of the rash.—See *Cutaneous Diseases*.

RUBEOLA, (from *ruber*, red.)—The measles.—See *Fevers*, eruptive.

RUE, *Ruta*, (from *pro*, to preserve, from its presumed healthy properties.)—A perennial plant, of the class decandria, and order monogynia. Tonic, stimulant, antispasmodic in operation, and employed in hysteria and flatulent colic, and also in the form of strong infusion for glyster, in the convulsions of children.

RUFUS'S PILLS, (*Pilulæ Rufi*.)—A well known compound, called in the pharmacopœia "the aloetic pills with myrrh." They are composed of two parts of aloes, to one part of saffron, and one of myrrh, and are prescribed in chlorotic, hypochondriacal and cachectic habits, to stimulate and open the bowels. Dose, gr: x to ℥j.

RUPTURE.—The common term applied to *Hernia*, which see.

RYE SPURRED.—See *Ergot of Rye*.

SAFFRON, (*Crocus Sativus*.)—A perennial plant, of the class triandria, and order monogynia, the stigmata of which are stimulant, exhilarating, and diaphoretic; used in hysteria, and other nervous affections, in doses of from gr: v to ʒss. A syrup, tincture, and confection, are prepared for the same purpose. Saffron, also, enters into the composition of a number of officinal preparations.

SAGAPENUM, (*Serapinum*.)—This term is probably derived from some eastern dialect, to distinguish the concrete gummy resinous juice

of an oriental umbelliferous plant, growing in Persia and Alexandria. Its qualities resemble those of the alliaceous kind of plants, and especially assafoetida, but its virtues are inferior, and consequently its use little known.

SAGE, (*Salvia*.)—A perennial plant, of the class diandria, and order monogynia. Tonic, stimulant, and carminative, and administered in the form of tea in debilities of the stomach and intestines, in convalescences, attended with night sweats, and as diluents in febrile diseases. It is also recommended as a good gargle in relaxations of the uvula. Dose, \mathfrak{z} iss, made of \mathfrak{z} i of the leaves, to a pint of boiling water, three or four times a day.

SAL AMMONIAC, (so called because it was found near the temple of Jupiter Ammon, in Egypt,) the *muriate of ammonia*.—This salt is obtained from several sources; it is found native and of volcanic origin, in the vicinity of burning beds of coal. In Egypt, it is procured from the soot of camels' dung, and elsewhere from bones and other substances known to contain it. In operation, it is aperient and diuretic, but seldom used internally. Externally it is employed as a refrigerant, and to abate the heat and pain of inflammation; and also to indolent tumours, gangrene, scabics, and chilblains. It enters into a variety of officinal combinations.

SALT, (*Sal*.)—Muriate of soda.—See *Soda*.

SANIES, (*Ichor*.)—A term applied to a thin, limpid, and greenish discharge, and sometimes to a thick and bloody kind of pus.

SARCOCELE, (from *σαρξ*, flesh, and *κηλη*, a tumour.)—A disease of the testicle.—See *Testicle*.

SARCOMA, (from *σαρξ*, flesh.)—A fleshy excrescence comprehended under the head of *Tumours*.

SARSAPARILLA, (*Smilax Sarsaparilla*.)—A plant, of the class diœcia, and order hexandria, the roots of which are employed as a diuretic and demulcent, in the sequelæ of syphilis, in scrofula, elephantiasis, cutaneous affections, and chronic rheumatism. Dose, \mathfrak{D} i to \mathfrak{z} i, of the powder of the root. An extract is prepared, (*extr. sarsaparillæ*) by evaporating the strained decoction, gr: x to \mathfrak{z} i, in pills, for the same purposes as the root. A simple and compound decoction are in extensive use, particularly the latter, as alteratives; dose, \mathfrak{z} iv to half a pint twice or three times a day. The antisiphilitic properties of this plant, once so much insisted upon, are now generally denied, and its purposes are limited to the qualities above described.

SASSAFRAS, (so called from the river Sassafra, in North America, on the banks of which it grows in abundance.)

Laurus Sassafra.—A perennial plant, of the class enneandria, and order monogynia, the root and wood of which is employed as a stimu-

lant, sudorific, and diuretic, in cutaneous diseases, chronic rheumatism, and as an adjunct to the decoctions of guaiacum, sarsaparilla, &c. Dose, ℥iv to ℥vj, twice a day, of the decoction. An essential oil is yielded from this plant, which is carminative and stimulant. Dose, ℥ij to x.

SAVIN, (*Juniperus Sabina*.)—A perennial plant, of the class diœcia, and order monodelphia. Stimulant, diaphoretic, emmenagogue, anthelmintic, and escharotic; prescribed in cases of amenorrhœa, with a languid pulse, in worms, and gout. Dose, gr: v to x, of the powder of the leaves, cautiously administered, as its effects are sometimes exceedingly violent. Externally, the powder is applied to old ulcers, carious bones, &c.; and the infusion of the leaves, as a lotion, to gangrene, scabies, and tinea capitis.

It is necessary to remark, that from its powerful determination to the uterus, it is considered a dangerous medicine to employ indiscriminately, and its very peculiarity has rendered it the means of crime in attempts at abortion.

An essential oil, (*oleum foliorum sabinæ*) is procured by distillation from the dried plant, and ℥ij to vj may be employed for the same purpose. The extract of savin, (*extractum foliorum sabinæ*) prepared by evaporating the decoction, gr: x to 3ss, in pills. Much of the virtue of the plant is dissipated in this formula, and an acrid bitter remains, applicable as a tonic to relaxed habits.

A strong decoction of the leaves in lard and wax form a good ointment for keeping up a constant discharge from blisters, &c.

SCABIES, (from *scabo*, to scratch.)—*Psora* or *Itch*, which sec.

SCALD HEAD, (*Tinea Capitis*.)—*Porrigo*, by Willan. This is a disease peculiar to the scalp, is infectious, and principally confined to children, among whom it is propagated in the same way as ring-worm. It consists of an eruptive and chronic inflammation, spreading until the entire scalp is corroded and beset with a scabby eruption. It arises from want of cleanliness, unwholesome food, and bad nursing.

Treatment.—The head to be closely shaved every four or five days, washed every night and morning with warm soap and water, and either of the following ointments applied. R. Picis liquid. ℥viij Cerae. flav. ℥ss. Sulph. sublim. ℥ij m. f. unguentum; or R. Ungt. picis. liquid. ℥ij. Hydr. oxym. grs. vj. m. A lotion may be applied previous to the ointment, composed of zinc and sugar of lead, of each half a drachm to six ounces of water, or R. Tabaci. ℥ij, Aqua. ℥bj, decoque ad. ℥ss et cola: adde Aq. Potass. subcarb. ℥j m. The patient should also wear an oil silk cap. Fine charcoal powder, sprinkled over the head night and morning, is a good application. The French use an ointment composed of the hydrosulphuret of potass; also, after poulticing, an ointment of

caustic potass and oil, or lard, which causes the hair to fall off, which is speedily reproduced after the cure. The primæ viæ must be evacuated, and alteratives given in obstinate cases, as a grain of calomel every night, or the blue and Plummer's pill; also, decoction of sarsaparilla, and absorbents, should acidity prevail. Sulphuric acid internally has been found very efficacious. The diet should be nutritious, avoiding fish and salted provisions. If the glands of the neck swell, or other ill effects ensue, as the consequence of suddenly drying up the eruption, frequent purges, and the application of an issue on the back of the neck will be proper.—Consult Willan on Porrigo and Impetigo.

SCAMMONY, (a corruption of the Arabian word *chamozah*.)—The concrete, gummy, resinous juice of the convolvulus scammonia, a plant of the class pentandria, and order monogynia, a native of Syria. A drastic purgative and hydragogue, administered in cases of obstinate costiveness, worms, and dropsy. Dose, gr: iij to xv, triturated with sugar or almonds.

The official preparations are, a confection, (confectio scammoniae) a warm cathartic, ʒss to ʒi, in bolus; the compound powder, (pulvis scammoniae comp.) a useful cathartic to remove the mucous from the intestines of children, gr: viij to xv.

SCARIFICATION.—The operation of making little cuts or punctures with a lancet, for the purpose of drawing blood from inflamed surfaces, evacuating the fluid in anasarca, or the air in emphysema.

SCARLATINA, (from *scarlatto*, the Italian for a deep red.)—The scarlet fever.—See *Fevers*, eruptive.

SCARLET FEVER.—See *Fever*.

SCIATICA, (from *ischiatricus*, belonging to the ischium.)—A rheumatic affection of the hip joint.—See *Rheumatism*.

SCIRRHUS, (from *σκιρρω*, to harden.)—A hard and indolent tumour of a glandular part.—See *Cancer*.

SCORBUTUS.—See *Scurvy*.

SCROFULA, (*Struma*, or *King's Evil*.)—This disease is chiefly seen in children and young persons. Its most common form is a swelling of the absorbent glands, particularly of the neck, which proceed to a very slow and imperfect suppuration, discharging a curdy matter, composed of flakes of coaguable lymph, and serum, and slow in healing. It is specific and hereditary. As in other hereditary diseases, it will sometimes lie dormant during one generation, appearing only in the grandfather and grandchild. It is rarely seen without the parallels of 45 and 60 degrees of latitude, and is particularly prevalent in places where there is much moisture and vicissitudes of atmosphere, in mountainous districts, and in cities. Hence its frequency in the island of Great Britain, in the mountains of Switzerland and Scotland.

London, Manchester, &c. Fortunately, in the United States, the disease is not frequent. Sir Astley Cooper, in his lectures, says, that in young children the glands of the mesentery and of the neck, are the most frequent seats of scrofula ; that from the age of seven to fourteen or fifteen, the joints, in the form of white swelling ; and from fifteen to twenty-five, the lungs, in the form of tubercular consumption, after which it is rarely seen. Scrofula is not contagious.

The characteristics of scrofulous individuals are, a handsome and delicate person, with fine skin, light hair, fair complexion, thick upper lip, with an acuteness of intellect and capacity for learning. They are seldom robust, nor can they endure much fatigue, and are very liable to catarrh.

Causes.—Original predisposition from hereditary taint or other causes not known ; cold, damp air ; want of exercise, proper food, cleanliness, or warm clothing ; indolence, or whatever tends to general debility. It is often, however, from a latent state, excited into action by blows, falls, or other injuries ; also, by small pox, measles, &c. The different appearances of scrofula are spoken of under White Swelling in the Diseases of Joints, Mesenteric Glands, Rickets, Consumption, &c.

Symptoms of scrofula in general.—Scrofula is attended by a specific inflammation, terminating in resolution, suppuration, or ulceration. The first appearance exhibited by a scrofulous gland, is a soft, doughy swelling, the covering of which becomes thickened. After some time, the doughy character is exchanged for one of elasticity and fluctuation, with a hard and circumscribed base, the skin being slightly red. If the tumour be opened at this stage, nothing will escape but blood. When it has advanced farther, it loses its elasticity, becomes soft and flaccid, and freely fluctuates. If it be opened now, or bursts of its own accord, the peculiar curdy matter of scrofula will be discharged, and the tumour will subside, while the aperture enlarges. The edges of this aperture are smooth, obtuse, and overlap, are of a purple colour, hard and tumid ; the granulations become soft, and the pain is inconsiderable. After a time, the wound begins to cicatrize. But when a joint is diseased, or a bone affected, the ulcer has a more fiery appearance, its margins are soft, elevated, and retorted, the pain much more severe, and the surrounding parts inflamed. Sometimes one ulcer will heal, and another make its appearance elsewhere ; sometimes, too, a gland will remain permanently indurated, and enlarge so much as to require extirpation.

Treatment, constitutional.—It being admitted that this disease depends upon original debility, it becomes necessary to restore the tone of the system without delay. White swellings, however, often require topical blood-letting, purging, and the antiphlogistic regimen. But when inflammatory symptoms are not present, we are, besides exhibiting tonic medi-

cine, to call in the aid of three great auxiliaries : 1st. Good air, for the benefit of which the child should be removed into the country, choosing a dry, healthy situation. 2d. Exercise ; to derive the full advantage of which, the child should be allowed to walk, run, jump, and partake of any sports or amusements which do not produce too much fatigue. 3d. Nourishment. Here the object is to convey into the stomach the greatest quantity of nutriment in the smallest bulk, such as animal jellies, arrow root, sago, tapioca, wine, &c. The medical treatment must consist of a small dose of calomel twice a week, to promote a healthy state of the digestive functions, and the secretions generally, together with bark, chalybeates, and other metallic tonics, with cold and sea bathing, and warm clothing in cold weather. The solution of muriate of barytes in doses of from three to ten or twelve drops twice a day, has been found useful, also lime-water and alkalies. The extract of hemlock is another remedy.

The local treatment.—Upon the first appearance of swelling, it should, if possible, be resolved. For this purpose, discutient lotions, soap and mercurial plasters, poultices of sea-weed or hemlock, sea bathing, electricity, blisters, &c. will be proper ; also, leeches, should much heat or inflammation be present. If, however, it proceeds to the formation of pus, the abscess should be allowed to burst, or opened by a small aperture. After which an emollient or hemlock or carrot poultice may be applied, and also saturnine lotions. If the ulcer appear sluggish, the application of solution of alum or sulphate of copper, and the ointment of nitrate of mercury may be applied.—Consult Cullen's First Lines, White's and Russell's Treatises, Burns's Dissertations, &c.

SCROTOCELE, *Scrotal Hernia*.

SCURVY, (*Scorbutus*.)—This disease makes its appearance on board ships upon long voyages, and in garrisons and besieged places, where the men live much upon salted provisions without a due quantity of vegetables. It chiefly takes place in cold climates, but is not so frequent as formerly, its prevention being better understood.

Symptoms.—Heaviness, weariness, lassitude, dejection of spirits, anxiety at the præcordia, and debility. As the disease advances, the countenance becomes sallow and bloated, the respiration hurried, the teeth grow loose, the gums bleed, are spongy and swollen, the breath is very offensive, livid spots appear upon different parts of the body, old wounds break out afresh, and old fractures disunite. Wandering pains are felt at night, the skin is dry, the urine scanty, changing vegetable blues to a green colour. The pulse is small, frequent, and afterwards intermitting, but the intellects are not much affected. At length the joints become swollen, rigid, and contracted ; great emaciation and hemorrhage from the nose and ears ensue ; fetid evacuations, diarrhœa, death. On shore, the symptoms are not so severe, or the cases so fatal.

Causes.—To the want of fresh provisions, vegetables, and acescents, may be added bad air, uncleanness, indolence, or too much fatigue, despondency, or any thing that induces debility. The proximate cause, some assert to be a preternatural saline state of the blood; others, a debilitated state of the solids, deficiency of oxygen, &c. Our prognosis must depend upon the degree and violence of the symptoms, the distance from land, and the prospect of obtaining fresh provisions and vegetables.

Treatment.—The indications are, to obviate the putrid state of the system, and to restore it to its former vigour. The first is fulfilled by a diet of fresh animal and more particularly vegetable food, salads, ripe subacid fruits, by beverages of lemonade, milk, malt liquors, spruce beer, &c. It is preferable to keep scorbutic patients on board, some days after their arrival in port, till they have grown accustomed to the different state of the atmosphere; as the greater density of the land air has, in some cases, proved suddenly fatal by suffocation. But when vessels are at sea, the above remedies are not to be obtained, or only in a sparing degree. All vessels bound on long voyages should take a quantity of lemon or lime juice, of which the scorbutic may swallow an ounce per day, mixed with sugar and water, improved by the addition of wine. The acid may be gradually increased to three or four ounces, provided it does not affect the bowels. The nitrate of potass in vinegar, is a most powerful antiscorbutic, (℥iv to lbij, of which ℥ss to i, three or four times daily, may be taken, a few grains of camphor to be added, if it affect the bowels.) The blotches and ulcerations may be bathed with the same composition. Bleeding is not admissible in scurvy, but the bowels, if constipated, may be gently evacuated with cream of tartar, tamarinds, and the like. Diaphoretics are also occasionally proper. Diarrhœa or hemorrhages should be restrained by astringents of a mild character. The ulcerated and rigid joint will always be relieved by bathing it in warm vinegar and water and applying emollient fomentations and poultices. The fomenting and antiseptic poultices may be also useful, and the gums will be hardened by gargles of alum, borax, myrrh, bark, &c.

The second indication is effected by the exhibition of cinchona, mineral acids, chalybeates, and other tonics; by free air, moderate exercise, warm clothing, a generous nutritive diet, and wine, avoiding cold and dampness.

The affections of the skin, called scorbutic eruptions, which arise without obvious cause at stated intervals, producing a discharge of lymph and abundant desquamation, are relieved by the use of saline aperients; and when inveterate, by alteratives of mercury, antimony, &c.; also, nitric acid, spruce beer, decoction of elm bark, with vegetable and milk diet, and sea bathing, and the internal and external use of sulphuric acid.

The prevention of scurvy at sea, consists in carrying provisions and water of the best quality, and fresh put up ; by providing as much live stock as possible, by having the inside of the water casks charred or burnt, or the water purified by charcoal ; by having an abundant supply of acids, fruits, rice, potatoes, and other vegetables, regularly served out to the men ; by diverting the minds of the seamen ; often fumigating and ventilating all parts of the ship ; scraping or sweeping the decks below, frequently, and not wetting them in damp weather ; and by drying the atmosphere by chafing dishes of coals, &c. ; by causing the bedding to be aired every dry day, and allowing no man to turn in, in his wet clothes ; by cold bathing ; and preventing the crew from enervating themselves while in hot climates, with spirituous liquors and other excesses.—Consult Sir G. Blane on the Dis. of Seamen ; Dr. Trotter in the Med. and Physic. Jour. vol. 4, p. 154 ; Sir John Pringle ; Dr. Lind, &c. ; Parsons on Dis. of Seamen.

SEA, (*Mare*.)—The air of the sea, the sickness produced by its motion in vessels, and sea water, all come within the consideration of the physician.

Sea air is recommended in many cases of debility, and especially those of a scrofulous tendency. Incipient phthisis is likewise frequently checked, and to children of languid habits it is a most powerful and valuable remedy.

Sea sickness.—This is greatly varied in different individuals, lasting only for a few hours, or continuing even for weeks ; cases are even recorded, where death has occurred from its extreme violence. Great benefit has been occasionally experienced by persons labouring under asthma or consumption, from a slight attack of this sickness. The vegetable acids, combined with a few drops of laudanum, are perhaps the most advisable remedies to check its severity.

Sea water contains a proportion of about one of saline contents, to twenty-three and a fourth of water. Its medicinal power is nearly the same as the other natural or artificial saline waters, and it has been employed as a discutient, both externally and internally, in scrofulous cases, with considerable advantage.

SECALE CORNUTUM.—*Ergot of Rye*, which see.

SEDATIVES, (from *sedo*, to assuage.)—That class of medicines which possess the power of diminishing the animal energy. They are divided into soporific sedatives, such as opium, hyoscyamus, cicuta ; and refrigerant sedatives, as the neutral salts, acids, &c.

SENEGA, or SENEKA ROOT.—From the polygala senega, or rattlesnake milk-wort, a perennial plant, of the class diadelphia, and order octandria, and formerly much esteemed as a remedy against the poison of the rattlesnake. It is stimulant, expectorant, diaphoretic,

and diuretic, in operation, and is occasionally administered in peripneumonia, after the inflammatory action is reduced; in humoral asthma and chronic rheumatism. Dose, gr: xxx to ℥ij of the powder. The acrid, hot taste is concealed, if administered in Madeira wine. A decoction is prepared, (decoctum senegæ) by the addition of ℥ij of the root to two pints of water, boiled down to one pint, and of which ℥iss to ℥ij may be taken three or four times a day.

SENNA, (an Arabian word, signifying acute, from its sharp, pointed leaves.)—The leaves of the cassia senna, an annual plant, of the class decandria, and order monogynia, the growth of Egypt. Cathartic and hydragogue, much used in costiveness and dropsy, either singly, (when it is apt to gripe) or in combination with the neutral salts, and other medicines. Dose of the powder of the leaves, ℥i to ℥i, rubbed up with crystals of tartar and ginger. The best form, however, is that of infusion, prepared by adding ℥iss of the leaves, and ℥i of ginger, to a pint of boiling water. Dose, ℥i to ℥iij.

Official preparations.—Compound infusion, (inf. sennæ compositum) mildly purgative and cooling; dose, ℥ij to ℥iii. Extract of senna, (extractum cassiæ sennæ) employed as an electuary, and adjunct to other remedies. Tincture of senna, stomachic, carminative, and cathartic, useful in flatulent colic and atonic gout; dose, ℥iij to ℥i.

Senna is *incompatible* with the strong acids, lime-water, the alkaline carbonates, nitrate of silver, oxy muriate of mercury, acetate of lead, tartrate of antimony, and the infusion of yellow cinchona.

SETON, (*Setaceum*.)—An artificial sore made under the skin by a needle, to which is attached a skein of thread or silk. This is left in the wound, and daily moved for the purpose of exciting irritation and discharge, in those cases requiring its use. Of late years, a small slip of gum-elastic has been used, instead of the seton-thread; and as it can be kept much cleaner, its employment may be preferred.

SIALAGOGUES, (from *σάλων*, saliva, and *αγω*, to expel.)—That class of medicines which excite an increased flow of saliva; such as the preparations of mercury, pyrethrum, squill, tobacco, pepper, &c.

SILVER, (*Argentum*.)—See *Metals*.

SINAPISM, (*Cataplasma Sinapcos*.)—See *Poultice*.

SINGULTUS, (*Lygmos*.)—The *Hiccough*, which see.

SINUS.—A term employed in surgery to denote a long and narrow track, leading from an abscess, from one abscess to another, or from a diseased bone. A sinus is usually dilated, to permit the ready escape of the matter, by passing a director in its length, and carrying a bistoury to its extremity.

SMALL POX, (*Variola*.)—See *Fever*, eruptive.

SNAKE-ROOT.—A name applied to two descriptions of plants, the

polygala senega, (sec *Senega*) and the *aristolochia serpentaria*, a plant of the class gynandria, and order hexandria, sometimes called the Virginian snake-root. It was formerly recommended as a remedy against the bites of poisonous snakes, but it has sunk into deserved disrepute for this quality. It possesses, however, some tonic and antiseptic virtues, and it is accordingly administered as a stimulant and diaphoretic in typhoid fever. The tincture is the form usually prescribed, and in doses of ʒss to ʒij.

SOAP, (*Sapo*.)—A compound of certain principles, in oils and fats, with a salifiable base.

The Spanish, or Castile Soap, (*sapo durus*, or *sapo Hispanici*), is employed in medicine, as a purgative and diuretic, in cases of habitual costiveness and jaundice, combined with rhubarb or some bitter extract. Its chief use is, however, in external application, as a detergent and stimulant to sprains and bruises, and also to the bowels of children labouring under mesenteric fever, attended with tumid abdomen. Internally it may be administered in doses of from gr: v to ʒss in pills.

The Turpentine Soap, (*sapo terebinthinæ*) or Starkey's soap, as it is sometimes called, prepared by the addition of ʒij of the spirits of turpentine to ʒi of hot ley, is applied with advantage to indolent tumours and chronic affections of the joints.

Soft Soap, (*sapo mollis*) prepared by the addition of boiling oil to caustic potass, is merely an external application for the same purposes as the Castile soap, and is especially useful in cleansing the heads of children in diseases of the scalp.

SODA, (an Arabian word.)—One of the fixed alkalies, usually procured from kelp or barilla, which are impure carbonates of soda. The kelp is obtained from the incineration of marine vegetables, whilst barilla is merely the name of a richer and purer kind, imported in considerable quantity from the Mediterranean. Soda likewise occurs in the mineral kingdom, united with the sulphuric, muriatic, and boracic acids, and in Egypt it is found combined with the carbonic acid. It occurs also in various other situations and in divers forms. Soda has been called the mineral alkali, in opposition to potass, which is described as the vegetable alkali. It is extremely acrid and caustic, corroding both animal and vegetable substances; is soluble in water, deliquescent, and crystallizes, though with difficulty, in four-sided prisms. It forms soaps of considerable hardness in combination with oils, and salts in union with acids, decomposes ammoniacal salts, and sometimes forms triple salts with potass, and other salifiable bases.

The discovery of sodium, or the base of soda, was made by Sir H. Davy, shortly after that of potassium, and by similar electrical and

chemical experiments. It is as white as silver, fuses at above 200° of Fahrenheit, and is of the specific gravity of 0.972 at 59° .

The following are the salts of this alkali employed in medicine :

The Carbonate of Soda, (*sodæ carbonas*) prepared by dissolving the sub-carbonate, and passing carbonic acid through the solution, which is afterwards crystallized. In operation, antacid and deobstruent, in dyspepsia and acidities of the stomach. Dose, gr: x to ʒss , twice or thrice a day.

The Sub-carbonate of Soda, (*sub-carbonas sodæ*) formed by dissolving the impure natural salt, and straining and crystallizing the solution. Its operation and dose are the same as the last described salt.

A dried sub-carbonate (*sodæ subcarb. exsiccata*) is also prepared by submitting the salt to watery fusion, and when dry, reducing it to powder.

Antacid and lithontriptic, in acidity of the stomach, and uric calculi in the kidneys and urinary organs; gr: x to xv in pills, with some aromatic.

The Muriate of Soda, (*urias sodæ*) or common salt, one of the most abundant productions of nature. Tonic, purgative, anthelmintic, and externally, stimulant. Administered in some cases of dyspepsia and worms; in large doses, to check hemorrhage from the stomach and bowels; as an ingredient in elysters; a fomentation in bruises; and, added to water, a stimulant bath. Dose, gr: x to ʒss . In clyster, ʒij to ʒi .

The Sulphate of Soda, (*sulphas sodæ*) or Glauber's salts, prepared from the salt remaining after the distillation of muriatic acid, the superabundant acid being saturated with sub-carbonate of soda.

Purgative, and in small doses diuretic, and frequently employed in costiveness, and when largely diluted, in bilious colic. Dose of the crystallized salt, ʒvj to xij.

Tartarized Soda, or the tartrate of potass and soda, (*tartras sodæ et kali*) a triple salt, formed by dissolving one part of the sub-carbonate in fifteen parts of water, and gradually adding three proportions of the sub-carbonate of potass, filtering, boiling, and crystallizing the solution. Cathartic, and well suited to cases of jaundice, calculus, and puerperal fevers. Dose, ʒss to ʒiiss .

Phosphate of Soda, (*phosphas sodæ*) a compound of phosphoric acid and soda; cathartic in the dose of ʒss to ʒi , and serviceable in serofula, bronchocele, rachitis, and gout.

SOLIUM, (from *solus*, alone.)—The tape-worm or *tænia*.—See *Worms*.

SOMNAMBULISM, (from *somnus*, sleep,) *Oneirodynia*.—This

affection is closely allied to nightmare or incubus, in its causes, and requires similar treatment.

SORDES.—The viscid and glutinous matter discharged from ulcers, of a brownish red colour, somewhat resembling the grounds of coffee, or grumous blood mixed with water. It is acrimonious and irritates the edges of the ulcer.

SPASM, *Spasmus*, (from *σπᾶω*, to draw.)—An involuntary contraction of the muscular fibres. It may be divided into three genera, according to the arrangement of Dr. Mason Good.

1. *The Constrictive Spasm.*—Inducing irregular muscular action, producing contraction, rigidity, or both. This includes canine madness, trismus, and tetanus, to which subjects the reader is referred, and also *Cramp*. This painful affection chiefly attacks the calves of the legs, the neck, and the stomach. The common causes are, sudden exposure to cold, and drinking cold liquors, when the body is in a heated state, and partaking of cold and unripe fruits when the stomach is infirm and incapable of digesting them. It is also occasioned by excessive fatigue, and many persons, and especially those of irritable habits, are subject to it during the warmth and relaxation of repose; it usually occurs in such cases towards morning, when the relaxation is greatest, the accumulation of muscular power most considerable, and the extensor muscles strained to their utmost length to balance the action which the flexor muscles have gained over them during sleep. Cramp is not an unfrequent attendant upon swimming, in which we have the two causes united, of cold and muscular extension. An uneasy position of the muscles will also be a source of irritation, and hence pregnant women are subject to painful cramps of the muscles about the legs, the sides, or the hypogastrium.

The pain in cramp is most acute; and when the membranous muscles are affected, they feel as though they were puckered and drawn to a point. In the more fleshy muscles, they appear to be writhed and twisted in a hard knot, accompanied with excessive soreness, and which continues for some time after the cessation of the paroxysm.

In some cases, where the extremities are cramped, an excitement of the oppressed muscles is sufficient for relief, and many persons cure themselves by suddenly rising into an erect position. Warm friction, either with the naked hand, or with camphorated oil or alcohol, will also be found serviceable in shortening the attack.

When the stomach is affected, the pain is described as agonizing, and a profuse perspiration starts from every pore; the diaphragm associates in the constriction, and the breathing is short and distressing. Active stimulants present the readiest means of relief; brandy and water, ether and laudanum, may be administered, whilst flannels,

wrung out of hot water, or moistened with the compound camphor liniment, should be applied to the epigastric region. If the attack should continue, the feet may be bathed in hot water, or have mustard sinapisms applied to their soles, and an anodyne and emollient injection may at the same time be thrown up the rectum.

The best preventives of cramp, when the stomach is principally affected are, a particular attention to diet in the first place, and the use of warm tonics in the second; if the limbs be subject to the attack from constitutional causes, the same treatment may be depended upon, together with regular exercise, habituating the affected muscles to as much exertion as their strength will bear.

Cramp is a frequent symptom in other diseases, particularly in colic and cholera, and must then be treated as recommended under those heads.

2. *The Clonic Spasm*.—Characterized by the forcible agitation of one or more muscles, in sudden and irregular snatches, including hiccough, (which see) sneezing, palpitations, &c.

3. *The Syncronic Spasm*.—Distinguished by tremulous, simultaneous, and chronic agitation, of various muscles, especially when excited by the will. Chorea or St. Vitus's dance, the shaking palsy, &c. (see these diseases) belong to this genus.

SPEARMINT.—See *Mint*.

SPERMATOCELE, (from σπέρμα, seed, and κηλη, a tumour.)—A swelling of the testicle, or epididymis, from an accumulation of semen. It is distinguished by a swelling of the organ, and pain extending to the loins, without inflammation. The treatment is purely antiphlogistic.

SPHACELUS, (from σφάκω, to destroy.)—See *Mortification*.

SPINA BIFIDA, (*Hydro-Rachitis*, or the *Cloven Spine*.)—In this case, there is an imperfect closure of the spine, so that the membrane, or continuation of the dura mater, investing the spinal marrow, from want of support, protrudes through the preternatural opening between the bones, and becomes filled with a fluid, sometimes colourless, at others, turbid or bloody. The defect of the spine is congenital, and exists in the cervical, dorsal, or lumbar vertebræ, but generally is situated at the junction of the lumbar vertebræ with the sacrum. The opening can be distinctly felt with the fingers. It is often connected with hydrocephalus, so that an enlarged head has been seen to diminish upon evacuating the tumour. It is seldom seen but in children, and usually soon proves fatal. The parts below the tumour are often paralyzed, and the stools and feces sometimes pass involuntarily.

Treatment.—The first successful cases of spina-bifida were published by Sir Astley Cooper, in the *Medico-Chirurgical Transactions*, vol. ii,

p. 323. Two of these cases were seen by Dr. Bartlett, when shown by Sir Astley to his class in 1811-12. In one he had adopted what he called a *palliative treatment*, namely, that considering spina bifida as a species of hernia, he reduced the swelling, or in other words, returned the fluid within the channel of the vertebral column, and confined it there by means of a truss, which at first produced some degree of dullness and convulsions. In the other, Sir Astley had adopted what he called a *radical treatment*, which was, (not finding that the fluid could be easily reduced) to puncture the tumour with a needle, and to evacuate the fluid; this he had repeatedly done, till at length adhesion had taken place between the sac and the preternatural opening of the spine. The cure was complete, the tumour being entirely obliterated, leaving nothing but the integuments in a wrinkled and flabby state.—Warner's Cases of Surgery; B. Bell's System of do.; Abernethy's Surg. and Physiological Essays.

SPINA VENTOSA.—See *Bones*, diseases of.

SPLEEN, (Σπλην.)—This organ is subject both to acute and chronic inflammation, although perhaps of all the viscera it is the least liable to disease. *Inflammation of the spleen*, or splenitis, is characterized by pyrexia, pain and swelling corresponding to the size of the spleen, in the left hypochondrium, sometimes extending to the left shoulder, with cough and difficulty of respiration. The pain is pulsatory, pungent, burning, and increased by pressure. The pulse on the same side is often partially suppressed and intermittent. Vomiting of green bile, dyspeptic symptoms, and difficulty in voiding the urine, are often present, accompanied with vomiting of, and passing blood by stool.

Causes.—The same as in other species of inflammation. The chronic inflammation is produced by long continued intermittents, and the affection is then called *ague-cake*. It terminates in resolution, suppuration, or scirrhus. The disease often departs with a diarrhœa, or vomiting of matter, resembling coffee-grounds. As with the liver, suppuration may take place into the cavity of the peritoneum, or more fortunately into the intestines. The acute species may also degenerate into the chronic.

Treatment.—The treatment of both species so nearly resemble that of the liver, that the reader is referred to it for information.

SPONGE, (*Spongia*.)—A sea production, and the habitation of marine insects, formerly used in surgery for tents, in dilating fistulous ulcers, &c. but now seldom employed.

BURNT SPONGE, (*Spongia Usta*.)—A favourite remedy with some practitioners in the treatment of bronchocle, serofula, and herpetic eruptions. Its essentials are, carbonate and phosphate of lime, carbonate of soda, charcoal, and iodine. The last substance has of late

years nearly dismissed the use of burnt sponge from practice. Dose, ʒi to iij, made into an electuary with honey.

SPRAINS.—These mostly happen to the ancles, knees, wrists, and other joints, and the parts which suffer are the ligaments, tendons, and small blood vessels; the latter are frequently ruptured, and the blood then extravasates, coagulates, becomes livid, black, and at length green, yellow, &c. forming a condition called ecchymosis. Sprains are attended with heat, pain, swelling, and effusion of serous fluid into the cellular membrane. In the treatment, we should prevent or moderate the inflammatory symptoms in the outset, by plunging the part into cold water, bathing it with astringent applications, as spirits and water, vinegar, or a weak solution of the acetate of lead. When inflammation is active, it must be met by the application of leeches, poultices of meal or bran and vinegar, at the same time administering diaphoretic and cathartic medicines, keeping the limb in a state of quietude, and in a horizontal position. After the inflammation has subsided, the tone of the parts may be restored by rubefacient liniments and bandages, and by allowing a stream of cold water to fall gently on the affected part. Any remaining rigidity may be removed by frictions, and in some cases electricity may be serviceable.

SPUTUM, (from *spuo*, to spit.)—Saliva. The term usually employed in medicine to denote expectoration.

SQUILL, (*Scilla*.)—A perennial plant, growing on the sea-coasts of Spain, Sicily, and Syria, of the class hexandria, and order monogynia, the bulb of which is extensively used in the practice of medicine. In large doses, it is emetic and purgative; in small quantities, expectorant and diuretic. It owes its properties to a peculiar principle, extracted by Vosel, from the bulb, in the form of a white, transparent, and acrid substance, called *scillitin*. The squill is administered in pulmonary complaints, after the inflammatory action is reduced; in humoral asthma, pertussis, and dropsy. When its diuretic effects are required, it may be combined with a mercurial. Dose, gr: i to v of the dried root powdered, and united with nitre or ipecacuanha; or in pills, united with the blue pill, to promote diuresis.

Officinal preparations.—Vinegar of squills, (*acetum scillæ*) diuretic, expectorant, and emetic, particularly useful in chronic catarrh; dose, ʒss to ʒij in mint or cinnamon water. Oxymel or honey of squills, expectorant, and in large doses emetic, ʒss to ʒss to excite nausea in chronic coughs and pertussis. Compound squill pills, (*pilulæ scillæ compositæ*) combined with ginger, soap, and ammoniacum; expectorant and diuretic; gr: x to ʒi, twice or three times a day. Syrup of squills; given in the same cases as the oxymel; a safe emetic for children; ʒi

to ʒij. Tincture of squills ; of the same use as the bulb in substance ; ℥x to ʒi, in mucilage.

To dry the bulb of the squill for use, it should be cut transversely, and the sections kept in an opaque and well-stopped bottle.

Incompatible with gelatine, lime-water, alkaline carbonates, acetate of lead, and nitrate of silver.

STAPHYLOMA, (from *σταφυλη*, a grape, from its supposed resemblance to that fruit.)—See *Eye*, diseases of.

STEATOMA, (from *σπαρ*, suct.)—An encysted tumour, containing a fatty or sucty substance.—See *Tumours*.

STERNUTATORIES.—Those substances that excite sneezing, and an additional secretion from the nose, such as snuff, euphorbium, the white hellebore, &c.

STERTOR.—A term employed to denote the snoring or snorting kind of respiration in *apoplexy*, which see.

STIMULANTS.—That description of medicines which possess the power of exciting the animal energy. They may be arranged in three classes : 1. Tonic stimulants ; as mustard, cantharides, some of the preparations of mercury, bitters, &c. 2. Diffusible stimulants ; comprising the volatile alkali, ether, spirits, electricity, heat, &c. And 3. Cardiac stimulants ; as cinnamon, nutmeg, wine, &c.

STOMACH.—Inflammation and diseases of.—See *Viscera*.

STRAMONIUM, (*Datura Stramonium*, or *Thorn Apple*.)—An annual plant, of the class pentandria, and order monogynia. Powerfully narcotic and antispasmodic, and when taken in excess, a deadly poison. It is sometimes administered in mania, epilepsy, convulsions, and severe chronic pains. Dose, of the powder of the leaves and seeds, gr: i, gradually increased to gr: viij, in twenty-four hours ; of the inspissated juice, gr: ss to gr: ij. Should a larger dose than warranted by caution have been swallowed, its effects may be restrained by a draught of vinegar, which somewhat overcomes its narcotic effects.

Externally, stramonium is employed as a sedative. Fomentations of the leaves are useful in discussing hard and indolent tumours ; and an ointment made with the powder allays the pain of hemorrhoids. Smoked like tobacco, stramonium will sometimes relieve the paroxysms of asthma.

Incompatible with the salts of lead, and the nitrate of silver.

STRANGURY, (from *σπαρξ*, a drop, and *ουρον*, urine.)—Ischuria. A difficulty in passing water, attended with pain.—See *Urinary passages*, diseases of.

STRICTURE, (*Stricture*.)—A diminution or contracted state of some tube or duct of the body ; as the œsophagus, viscera, urethra,

vagina, &c. They are either organic or spasmodic.—See the above subjects.

STROPHULUS.—A papulous eruption, peculiar to infants.—See *Cutaneous Diseases*.

STRYCHNINE, (*Strychnia*.)—See *Nux Vomica*.

STRUMA, (*a struendo*, because it grows insensibly.)—The term sometimes applied to scrofula, which see.

STYE, (*Hordeolum*.)—A little inflammatory tumour on the eye-lid.—See *Eye*, diseases of.

STYPTICS.—Those substances supposed to possess the power of restraining hemorrhage. Internally: the preparations of lead, alum, catechu, kino, and other astringents. Externally: the same, together with the sulphates of copper and zinc. Sponges, pressure, ligatures, alcohol, vinegar, the mineral acids, cold air, water, and ice, may also be medicinally included under this term.

SUBSULTUS TENDINUM, (from *subsulto*, to leap.)—A spasmodic twitching of the muscles and tendons, occurring in the advanced stages of fevers, and generally considered as an unfavourable symptom.

SULPHUR, (from *sal* or *sul*, and *πῦρ*, fire, so named from its combustibility.)—Brimstone. A simple inflammable substance, occurring pure in nature, and in great abundance.

It is found in the earth, and exists externally in depositions, in sublimed incrustations, and on the surface of certain waters, principally near burning volcanoes. At Solteferra, near Vesuvius, it occurs crystallized in pyramids. It is also found in combination with the metals.

The sublimed sulphur, or flowers of sulphur, after it has been well washed, to deprive it of any acid it might contain, is employed in medicine as a stimulant, laxative, and diaphoretic. As a laxative, it is prescribed in chronic rheumatism, atonic gout, rachitis, and asthma; and in hemorrhoidal affections, it is one of the few laxatives that may be given with safety, united with a little magnesia or super-tartrate of potass. Dose, 3ss to 3ij, every night and morning. As an external agent, it is a specific in itch, made up into ointment with lard, and is also serviceable in some of the cutaneous eruptions.

SULPHURIC ACID.—See *Acids*.

SUPPURATION.—By this term is meant, that process which forms the peculiar fluid called pus, in any part of the body, being always preceded by inflammation. It is indeed the second termination of inflammation, and is marked by rigors, subsidence of the heat, throbbing, and other symptoms of inflammation. A conical eminence, or pointing, appears upon the surface of the tumour, which has a distinct fluctuation, and a whitish or yellowish appearance. The rigors are most distinct and perceptible in large abscesses, and when situated in any of the

viscera. The surface of the swelling is often œdematous. The opinion, that the action of external air causes suppuration, is not true, neither do dead animal substances become converted into pus, as bone, extravasated blood, diseased cellular membrane, &c. ; for these are frequently discharged from wounds, after remaining in them for a length of time, having sustained no other diminution than that caused by absorption. The modern doctrine of suppuration is, that the pus is separated from the blood, by the inexplicable operation of the secreting arteries, just as an ordinary secretion takes place ; and that the peculiar mode of action in the arteries, is the reason why pus should be separated from the circulation, rather than coagulating lymph, mucus, &c. It is farther believed, that the solids never suffer any dissolution, so as to enter into the composition of pus ; and that the deficiency, frequently apparent in them, arises from absorption. The arteries, in producing a fluid so dissimilar from blood, and of which, at least, it must be considered as a new combination, seem to assume all the power of a glandular secretion. Pure pus, when secreted from healthy parts, is bland and harmless in its nature, so that when it sometimes remains in a cavity, it is constantly absorbed and secreted by the surrounding surface. But when the adjacent parts become affected with inflammation, the pus loses its natural thickness and whiteness, becomes more limpid, transparent, fetid, and disposed to putrefy. In this state it is termed *sanies*, is irritating to the surrounding parts, and so much so as to cause them to be absorbed. But it never corrodes. These appearances are met with when a bone is diseased. In scrofulous abscesses and indolent ulcers the matter is flaky. In many specific diseases, as small and chicken pox, chancre, &c. the matter has a healthy appearance ; in such instances, the specific poison existing in an impalpable form. Good pus is most readily formed near the source of circulation. Matter always has a tendency towards the surface ; thus if matter forms immediately external to the peritoneum, it makes its way through the abdominal muscles, adipose substance and integuments, rather than through the fine membrane just beneath it. When matter, however, is situated under fasciæ, they offer so much resistance to its progress, that it diffuses itself. All those intervening substances between the matter and the surface are absorbed as the matter proceeds.

Abscesses are always bounded by a cyst, which is more or less thickened, according to the length of time it has existed. This cyst is, as has been said before, a secreting and absorbing surface, secreting new pus, and continually absorbing the old. The cyst is formed of coagulable lymph, which is deposited around the collection of matter, and becomes organized. Large collections of matter are often entirely removed by the process of absorption, particularly in chronic abscesses,

The use of the cyst is, to prevent the matter from spreading, and to keep it within due bounds. In acute abscesses, this cyst is very firm, while in chronic abscesses, it is much weaker; and hence the former are always circumscribed, while the latter is very diffusio, extending sometimes from one end of a limb to the other.

Treatment.—A part in a state of inflammation, and prior to suppuration, of course requires the application of cold washes, local bleeding, purging, &c. as stated under inflammation; but as soon as it is evident, that matter has formed, or in other words, that suppuration has taken place, it is usual to lay aside such remedies, and resort to emollient poultices and fomentations, and sometimes to exhibit bark, wine, &c. to hasten the completion of the abscess. Poultices, from their keeping the integuments soft and yielding, as well as from their soothing effect upon the sensibility of the nerves of the part to which they are applied, give great relief when the usual applications for inflammation fail, even if suppuration be remote.

Opening abscesses.—The general opinion is in favour of allowing phlegmonous abscesses to break of themselves, rather than to open them, or at any rate to wait until the skin has become quite thin before the surgeon interferes. But when the matter is situated under an aponeurosis, or in tendinous parts, as the fascia lata of the fore arm, &c. it diffuses itself, from being unable readily to approach the surface; the same remark applies when matter is in the vicinity of a joint, or within the cranium, &c. In all these cases, an early and free opening is necessary. In a chronic abscess, likewise, an early opening is advisable; for, having but a weak cyst, it is continually diffusing itself, without inflammation, or showing any disposition to approach the surface. The opening should be made at the conical eminence or pointing, as it is termed, where the matter presents itself, and in the most depending part, so that the matter may evacuate itself by its own gravity. In such cases, it is best to make the opening obliquely through the integuments, and to evacuate only a part of the pus, as the remainder will often absorb, if pressure be made and the patient keep his bowels free. The violent symptoms of irritation attending the opening of one of these abscesses, may be attributed to the effort nature is making to unite the cyst by adhesive inflammation, and not by the admission of air, as was formerly supposed. Large, deep seated abscesses are best opened with a scalpel, small and superficial collections with a lancet.

The poultices should be continued until the soreness has subsided, after which they induce debility of the part; dry lint or simple cerato, and bandages, are then proper. Where there is a redundancy of integument, a dossil of lint insinuated between the lips of the wound may

be necessary to prevent a premature union.—Consult Hunter on Inflammation, Pott, B. Bell, Kirkland, &c.

SUTURES.—A suture is a method used for holding the edges of a wound together, by means of stitches, made with a needle and thread, in order to favour an union by the first intention. Sutures were formerly much used, but are now employed in wounds which cannot be kept in close apposition by means of sticking plaster and bandage ; as wounds of the abdomen, from the agitation caused by respiration, and from the tendency of the viscera to protrude ; also some wounds of the trachea, &c. Sutures receive different appellations, according to the mode of making them ; as the *interrupted*, the *glovers*, the *twisted*, &c.

1st. The *Interrupted Suture*.—In which, at each stitch, the two ends of the ligature are brought together and tied. 2d. The *Glover's Suture*. This is executed by introducing the needle first into one lip of the wound from within outwards, then in the other in the same way ; in this manner the whole track of the wound is sewed up. This operation is now entirely abandoned except for sewing up dead bodies. 3d. The *Twisted Suture*. This is explained under *Hare-lip*. 4th. The *Dry Suture*. This absurd term means the uniting a wound by means of a sticking plaster.—Consult Le Dran, Sharp, J. and B. Bell.

SYNCOPE, (from *συν*, with, and *κοπτω*, to strike down.)—Fainting or swooning. An affection in which the respiration and action of the heart either cease, or become much weaker than usual, with paleness and coldness of the surface, arising from diminished energy of the brain, or from organic affections of the heart. Syncope is generally preceded by anxiety about the præcordia, a sense of fulness from the stomach towards the head, vertigo, and chilliness ; it is accompanied in some instances by vomiting, and occasionally terminates in convulsions.

The *causes* of those fainting fits not dependant upon absolute disease, are, sudden and violent emotions of the mind, derangement of the primæ viæ, debility from previous disorders, loss of blood, &c.

The *treatment* consists in stimulating the nostrils with some of the preparations of ammonia, and also in administering them internally, provided the disease has not originated from an extensive loss of blood, when the utmost caution is necessary. If connected with a disordered stomach, an emetic may be given with advantage upon the first return of consciousness ; and should there be reason to suspect an accumulation of blood about the heart, the propriety of venesection will be unquestionable. Between the fits, the system should be invigorated by tonics, change of air, exercise, and nourishing diet, and every exciting cause carefully guarded against. If an organic affection of the heart be the cause, of course that will engage the primary attention of the physician.

SYNOCHA, (from *συνεχω*, to continue.)—Inflammatory fever.—See *Fevers*.

SYNOCHUS, (from a similar derivation.)—A mixed fever.—See *Fevers*.

SYPHILIS, (the name of a shepherd of Alcithous, who insulted the sun, and was punished by the infliction of the disease; or from *σιφλος*, filthy.)—Lues venerea, or *venereal disease*, which see.

T BANDAGE.—So called from its resemblance to the letter T, and principally used for a support to the dressings after operation for fistula in ano, in diseases of the perineum, groins, anus, &c.

TAMARIND, *Tamarindus*, (a synonym in the Arabic language for the date.)—A tree of the class monodelphia, and order triandria, the growth of the West Indies, the fruit of which is medicinally employed as a laxative and refrigerant in dysentery and fevers, particularly those attended with an increased secretion of bile, and putrid symptoms.

TANSY, (*Tanacetum*.)—A perennial plant, of the class syngenesia, and order polygamia superflua. Tonic, dcobstruent, and anthelmintic, in operation; and administered in gout, in hysteria when connected with suppression of the menses, and in worms. It is, however, but seldom employed. Dose, ʒss to ʒi.

TAPE-WORM, (*Tænia*.)—See *Worms*.

TAPPING, (*Paracentesis*.)—See *Hydrops*.

TAR, (*Pix Liquida*.)—Obtained by heat from the pinus sylvestris, or Scotch fir, (class monœcia, and order monadelphia;) consisting of resin, empyreumatic oil, charcoal, and acetous acid. In operation, stimulant, diuretic, sudorific, and externally detergent. Sometimes employed in ichthyosis, and formerly recommended as an antisiphilitic. In a work by Sir Alexander Crichton, entitled "An account of some experiments made with the vapour of boiling tar, in the cure of pulmonary consumption," an extraordinary efficacy is attached to this mode of its use, and further experiments have proved its value in promoting expectoration, relieving dyspnœa, and spitting of blood.

Externally it is applied to foul ulcers and tinea capitis.

TARAXICUM, (*Dandelion*.)—A perennial plant, of the class syngenesia, and order polygamia æquales, the root of which is employed as an aperient, diuretic, and resolvent, in chronic inflammation, and incipient scirrhus of the liver, chronic derangements of the stomach, dropsy, pulmonary tubercles, and jaundice. Dose of the infusion of the sliced roots, ʒi, to ij pints of water, boiled to half the quantity, with the addition of ʒiij of the supertartrate of potass, three times a day.

Incompatible with the infusion of galls, nitrate of silver, oxymuriate of mercury, acetate of lead, and sulphate of iron.

TARTAR, Cream of.—The common name of the supertartrate of potass.—See that alkali.

TARTAR EMETIC.—See *Antimony* under the head of *Metals*.

TAXIS.—The operation of returning by the hand those parts that have been displaced from their natural situation ; such as the reduction of hernia.

TENT.—A roll of lint or sponge for dilating openings, sinuses, &c. But little employed in modern surgery.

TERTIAN.—The term employed to denote a third-day ague.—See *Fevers*, intermittent.

TESTICLE, (*testis*, a witness, from the *testes*, being the witnesses of manhood.)—This organ is subject to a variety of diseases, some comparatively trivial in their character, and others of a severe and even fatal description.

HYDROCELE is divided into three kinds : one, in which the fluid is lodged in the cellular texture of the scrotum ; another, in which it is contained in the tunica vaginalis testis ; and a third, in which the fluid collects in the spermatic cord.

The first variety, *Hydrocele Œdematodes*, is an anasarcaous tumour of the scrotum, and is generally symptomatic of a general dropsical affection ; it is softish and pale coloured, and when touched, the impression of the finger remains for sometime afterwards. As the disease progresses, the part becomes firmer, smooother, and tenser, effacing the corrugations of the scrotum, enlarging the penis, and especially the prepuce, and in the worst cases occasioning inflammation and sloughing of the skin and cellular membrane. In addition to general dropsy, this disease may be occasioned by the pressure of tumours upon the large veins and lymphatics within the abdomen, by the accidental rupture of a hydrocele of the tunica vaginalis, or by the escape of the fluid in the operation for hydrocele of the tunica vaginalis. Violent contusions of the scrotum, and the pressure of an ill-made truss, may also be causes operating in the production of an œdematous hydrocele.

The *treatment* must in the first place be directed to the removal of the exciting cause, and hence the remedial plan will frequently correspond with that described under the head of *Dropsy*. In peculiar local attacks, the aim must be to promote the absorption of the extravasated fluid, by fomentations and gentle friction, at the same time supporting the scrotum with a suspensory bandage, and frequently administering mild cathartics.

Hydrocele of the Tunica Vaginalis is the second variety. This has generally the appearance of a smooth, oblong, or pyriform swelling of one side of the scrotum, unattended with any discolouration. It commences at the lower part of the scrotum, and gradually spreads

upwards until it reaches the higher part of the spermatic cord, on the outside of the ring. It is softish and fluctuating on examination, rising to its first level after depression, is not diminished by pressure or change of position, cannot be returned into the abdomen, gives no impulse on coughing, and is thus clearly distinguished from hernia. Its shape, from that of a pear, with the broad part downwards, becomes more oblong, its weight and firmness increase, and the fluctuations gradually become less distinct. The scrotum will generally present a transparent appearance, if a candle be placed behind it, and the testicle cannot be plainly felt, and its situation indeed only discovered by a hard feel at the upper and back part of the tumour. The penis appears small, and, as it were, buried in the mass, but the spermatic cord is seldom concealed from the touch. The quantity of fluid contained is various; from six or eight ounces to four and even six pints. The disease is rather inconvenient, from its weight and dragging down the spermatic cord, than dangerous; but when large, it interferes with every kind of exertion, and likewise by drawing the integuments from the penis, prevents the full erection of that organ.

A hydrocele may be discriminated from a common sarcocele by being compressible, indolent, and much lighter; by being even and uniform in its enlargement, and accompanied by a fluctuation.

With respect to the cause of hydrocele, but little is known respecting it. Sir A. Cooper states, that the absorbent vessels of the spermatic cord are much enlarged, and he adopts the opinion, that the disease consists rather in increased secretion than diminished absorption. In general, the complaint appears to originate spontaneously, although it was referred by the late Mr. Ramsden, of St. Bartholomew's Hospital, London, to an irritable state of the urethra. It has sometimes followed a bruise or severe horse exercise, and also the pressure on the spermatic cord from a truss. The prognosis entirely depends upon the state of the testicle and general health, for when these are unimpaired, the complaint is of little consequence and easily cured. When, however, it is combined with sarcocele, constituting a hydro-sarcocele, the case is very different, because the hydrocele admits of no remedy unless the testicle can be restored to its function, or removed by an operation.

The *palliative treatment* consists in puncturing the tumour with a lancet or small trochar, for the purpose of discharging the fluid. The best place for the puncture is at the anterior and lower part of the tumour, taking care not to introduce the trochar to an unnecessary depth, lest the testicle be injured, and directing its point obliquely upward. As soon as the stilette has entered the tunica vaginalis, it may be withdrawn, while the canula is pushed further into the cavity, and retained until the whole of the fluid has escaped. A small piece of

soap plaster may afterwards be placed over the wound, and a suspensory bandage applied.

In the hydroceles of children, it must be remembered that the testicle generally occupies a lower situation than in those of grown up persons, and the swelling extends higher up the cord; and hence, in tapping, the surgeon should introduce the trochar somewhat higher up than the place chosen in adults, and direct the instrument rather less obliquely backwards.

The *radical cure* of hydrocele may be attempted after the palliative treatment has failed. A variety of modes have been proposed for this purpose, such as, external applications, excision of the sack, seton, caustic, incision, tent, and injection: of all these, the last, or injection, is alone entitled to our attention, for the inflammation and fever usually attendant upon all the other methods, (except seton, and which may in a few instances be tried in children, by passing a thread transversely through the hydrocele) have thrown them into disuse.

The injection is thrown into the scrotum, after the exit of the fluid by the usual operation, provided the testicle, which can then be fairly examined, presents no indications of scirrhus. In operating, it is necessary to remember that the tunica vaginalis collapses as the fluid escapes, and therefore that the canula is liable to displacement; if an injection be then forced in, it will be thrown into the loose cellular texture of the scrotum, and produce inflammation, and sometimes mortification of the integuments. The canula, on this account, must be held steadily within the tunica during the flow of the fluid, and retained in the same situation during the injection; and if any displacement have occurred, the operation should be deferred to another day, as it is almost impossible, at all events without considerable risk, to discover the opening in the tunica vaginalis, from its not remaining exactly opposite to the puncture in the scrotum. In some cases, hydrocele has been cured by simply returning the fluid that has been discharged; in others, by distending the sac with cold water; but the usual injection is composed of two parts of port wine and one of water. The rationale of this operation is as simple as ingenious; it excites such a degree of inflammation in the tunica vaginalis and testicle, as leads to an universal adhesion of the inner surface of this membrane to the tunica albuginea, and consequently to a complete obliteration of the cavity in which the water was collected. It is accordingly absolutely necessary that some degree of inflammation be excited, and it is frequently necessary to desire the patient to walk up and down his apartment for an hour or two, to accomplish such a result. Sometimes, on the other hand, the inflammation will be too severe, and lead to considerable constitutional disturbance, when poultices should be applied to the scrotum, and the

usual antiphlogistic treatment practised. Sir A. Cooper recommends that the quantity of injection thrown in should never equal in quantity that discharged, that it should remain in about five or six minutes, and he particularly recommends that the tunica vaginalis should be moved about, in order that every part of its surface should come in contact with the injection.

Congenital Hydrocele consists of an accumulation of fluid within the tunica vaginalis, while the communication between the abdomen and the cavity of that membrane remains unclosed. The swelling is of an oblong shape, concealing the testis, but permitting the spermatic cord to be felt behind, and a little towards the outer side of the upper part of the tumour. When the swelling is compressed, it subsides from the fluid passing up into the abdomen. The German surgeon, Schreger, describes this affection as of frequent occurrence, although he believes that it is very generally overlooked or misunderstood, and attributed to other causes. If it should continue beyond the first month, it will generally remain during childhood, and sometimes even in the adult age.

In the *treatment* of this variety of hydrocele, M. Viguerie, of Toulouse, was accustomed to press all the fluid back into the abdomen, and confine it there by a truss, the pad of which pressed on the abdominal ring. This plan has, however, sometimes proved ineffectual, when the operation of Desault, that of injection must be performed, although the risk of exciting peritonitis, or active inflammation in any texture, during the age of infancy, must always be taken into consideration. An assistant should in the first place make pressure on the upper part of the sac, so as to close all communication between the tunica vaginalis and the abdomen, when the injection of red wine and water in equal parts, or two of water and one of wine, is introduced in the usual manner, allowed to remain a short time, and a truss afterwards applied, both to prevent the entrance of any remaining portion into the abdomen, and the descent of the viscera. This is, however, at all events, a serious operation, and never exempt from danger.

Hydrocele of the Spermatic Cord.—This is, in some instances, an œdematous affection of the whole of the cellular substance of the spermatic cord; and in others, the confinement of the fluid to one or more cavities within the sheath of the spermatic vessels, when it is termed *encysted hydrocele* of the part.

The first variety is not very common, nor does it occasion a great inconvenience; when not large, it is often mistaken for a varix of the spermatic cord, or an adherent omental hernia, and is submitted to by the aid of a suspensory bandage. The testicle, which can be distinctly felt, hangs lower down on the affected side than on the other, and the

tumour is broader at the bottom, and diminishes when compressed, though returning to its former size directly pressure is discontinued.

The only radical cure consists in making an incision into the tumour from the abdominal ring to the testicle ; but this treatment will be rarely submitted to, unless the disease becomes exceedingly large and troublesome, which is seldom the case.

The *encysted hydrocele of the spermatic cord* occurs in the middle part between the testicle and groin, and is of an oval shape, tense, so that the fluctuation is with difficulty distinguished, circumscribed, attended with no pain, and permitting the testis and epididymis to be felt below it. Sometimes the hydrocele of the cord is situated near the abdominal ring, into which it admits of being pushed, when it is distinguished from a hernia by the ease with which the vessels of the cord are felt when the tumour has descended again, and the finger and thumb are pressed in between it and the ring. There is likewise no gurgling sensation produced, when the part ascends, nor are the functions of the bowels interrupted when it is down. It may also be distinguished from a hydrocele of the tunica vaginalis by the testicle being on the outside of the cyst, and easily felt behind it ; whereas in the hydrocele of the tunica vaginalis, it is surrounded with fluid, and cannot be discovered.

In children, the fluid may frequently be dispersed by fomentations and aperient medicines, or where this fails, by a small puncture, sufficient to evacuate the fluid. In adults, it is sometimes necessary to make an incision throughout the whole length of the tumour, and in some cases a cure has been accomplished by means of a red-wine injection. The late Mr. Hey, of Leeds, in England, operated successfully in several cases, by laying open the cyst of the hydrocele, and excising the anterior part ; and Sir A. Cooper has effected a radical cure by means of seton.

HÆMATOCELE is a swelling of the scrotum or spermatic cord, from the effusion of blood. It may be occasioned by wounding a vessel in the operation for hydrocele, when the blood flows into the tunica vaginalis, and also into the cellular texture of the scrotum ; by the spontaneous rupture of a vessel after the operation, when the blood is confined to the cavity of the tunica vaginalis ; by a rupture of a branch of the spermatic vein ; and by the same causes producing effusions of blood in other parts of the body, such as blows, sprains, &c.

The *treatment* consists in promoting the absorption of the extravasated blood, by applying the lotions composed of the spirits of wine, vinegar, and the muriate of ammonia. Should the patient be young, he may be bled, purged, and kept upon a limited regimen for a few days, at the same time supporting the scrotum with a bag attached to the suspensory bandage. If the affection resist this treatment, and the sense of weight

be extreme, and especially where blood is effused in the cellular texture of the serotum, a free incision must be made in the tumour, and the bleeding vessel secured, if it can be discovered. When inflammation is acute, leeches and febrifuge medicines will be proper, and should suppuration threaten, an emollient poultice must be applied.

VARICOCELE and CIRCOCELE.—By the former of these terms is understood an enlarged, or varicose state of the vessels upon the surface of the serotum generally, requiring little more than a bag truss, and rarely proceeding to any extent, unless depending upon other diseases of the testicle, or spermatic cord, which in such cases must receive primary attention.

The latter term, or *circocoele*, is a varicose distention of the spermatic veins of the cord, below the abdominal ring, increasing towards the testicle. It causes no inconvenience in its early stage, but a slight sense of weight and uneasiness, which is removed by mechanically supporting the testicle. But in more aggravated cases there are pains in the back and loins extending down the thighs, and in some cases a wasting of the testicle. The tumour has a knotty, uneven feel, and very much resembles an omental hernia, dilating when the patient coughs, and receding as he lies down. But if the patient be placed in the recumbent posture, and the doubtful tumour reduced into the abdomen by pressure, and the surgeon then place his finger firmly upon the abdominal ring, and direct the patient to rise, it will not return, if a hernia, whilst a *circocoele* directly re-appears.

Treatment.—A palliative plan can only be adopted, but in common cases nothing more is necessary than to wear a suspensory bandage. The distention sometimes, however, becomes hot and painful, when leeches, saturnine lotions, and the horizontal posture, are necessary, also the silken bag truss, and suspensory bandage, when the patient resumes his avocations. Few cases are so severe as to require the removal of the testicle.

SARCOCELE.—This term means a chronic, or fleshy enlargement of the testicle. Authors differ as to the extent of its application. Some including cancer, serofula, &c.; but perhaps it is better reserved for such affections of the gland as are not specific or constitutional.

Of the common Vascular, Cystic, and Medullary Sarcoma.—The pathological phenomena of sarcomatous affections, are described under the article *tumours*, which see. It should however be remarked, that when the testicle is affected with sarcoma, it is extremely liable to take on a malignant or cancerous action, which, unless removed, destroys the patient; therefore the operation for extirpating the organ must be performed as soon as the gland is so far diseased as to be unable to secrete semen.

In all cases where the operation is contemplated, the state of the spermatic cord must be taken into consideration, for if that be extensively diseased, if it be hard, knotty, and its parts obscure, attended with darting pains towards the loins, together with indications of internal abdominal affection, it is too late to save the patient's life by removing the testicle. Such cases, however, must be carefully distinguished from the comparatively harmless ones of hydrocele of the cord, and circocele. There are many incipient cases which may be relieved by the application of leeches, cold saturnine lotions, camphorated mercurial ointment, and other resolvents. Cicuta, mercury, and other alteratives, may be tried internally; but very little time should be lost in the use of remedies, if the disease be rapidly increasing. Some cases are extremely slow, while others are very rapid, and with these affections there is often complicated a collection of water in the tunica vaginalis, termed *hydro-sarcocele*. Here it will be proper to evacuate the fluid, and then to be governed in our farther practice by the state in which we find the testicle. A morbid irritability of the urethra is said to give rise to some cases of indurated testicle, and which is removed by passing bougies.

SCROFULA OF THE TESTICLE is not attended with lancinating pain peculiar to cancer, or its hardness, and the patient exhibits the peculiar characteristics of scrofula. If the testicle be removed, it will, on being cut into, exhibit a white, or yellowish coloured curdy substance, mixed with pus.—(See Baillic's Morbid Anatomy.) These cases can be often much relieved by the use of calomel, cicuta, sea-bathing, and the remedies spoken of under scrofula.

CANCER OF THE TESTICLE.—This exhibits the same phenomena here as in other parts of the body, having the peculiar hardness, deep seated lancinating pains, which shoot up the cord towards the loins, and a rapid impairment of the health. Dr. Baillie says, that the tumour when laid open, is found to be changed into a hard mass of a brownish colour, intersected by membrana. The natural structure is generally destroyed, but cells are frequently observed, containing a sanious fluid, with sometimes a mixture of cartilage. The disease gradually extends to the epididymis, the cord, and to the abdomen if not timely removed by the operation; the only means, indeed, of saving the patient. In time, ulceration takes place, when a foul, deep, cancerous ulcer forms, and a fungus often shoots out.

SOFT CANCER OF THE TESTICLE, or *Medullary Sarcoma*, according to Mr. Abernethy.—(See his Surg. Observ. 2d Ed. London, page 56.) Mr. Wardrop is of opinion, that this disease is none other than fungus hæmatodes. It certainly closely resembles it, and may be treated accordingly.—See *Fungus Hæmatodes*.

FUNGUS OF THE TESTICLE.—"There is a particular affection of the testicle, in which a fungus grows from the glandular substance of this body, and, in some cases, from the surface of the tunica albuginea. This excrescence is usually preceded by an enlargement of the testicle, in consequence of gonorrhœa, a bruise, or some species of external violence. A small abscess takes place and bursts, and, from the ulcerated opening, the fungus gradually protrudes." Sir A. Cooper recommended that a cure should be attempted in these cases by removing the fungus with the knife, or by caustic, after the previous inflammation had abated, instead of resorting to the severe operation of castration, as had previously been done. His advice was adopted with success by Sir James Earle, at St. Bartholomew's Hospital, and nine cases have since been published in the *Edinburgh Medical and Surgical Journal*, July, 1808, with similar opinions and results.

Cancer Scroti, or chimney-sweeps' cancer of the testicle.—See *Cancer*.

The testicle, like the breast, is subject to the hydated and irritable tumours. It is also subject to a tumour depending upon gleet and a bad state of the habit.

HERNIA HUMORALIS, or *Inflammation of the Testicle*.—The first symptom is generally a soft, pulpy fulness of the part, with pain and soreness. This soon increases to a hard swelling, the scrotum loses its corrugated appearance, and becomes red and tense. The pain is now much increased, from the unyielding nature of the tunica albuginea, and the epididymis, particularly at its lower part, is much hardened; the vas deferens is often thickened, and painful when touched, and is apt, after the disease has abated, to remain permanently impervious. There is also severe pain in the loins. Besides the general causes of inflammation for inducing swelled testicle, we may particularly enumerate blows, falls, hard riding, some of the operations for hydrocele, &c. But the most common of all is, irritation in the urethra, either from the improper use of injections in gonorrhœa, or bougies in stricture. In the former case, the ardor urinæ and discharge usually cease, until the hernia humoralis is subdued, when the gonorrhœa returns, and finishes its course in the usual manner, shewing its completely metastatic tendency.

Treatment.—It is of the first importance to keep the patient in a horizontal posture, and the scrotum supported by a bag truss, suspensory bandage, or other contrivance. General, and more particularly local bleeding, should be practised, either by leeches, or by opening the veins upon the scrotum, and frequently repeated. Cold evaporating lotions are next recommended, and the employment of emollient poultices and fomentations. Emetics are advised by Mr. Hunter, and

opium is sometimes necessary to relieve the pain. After the reduction of the inflammation, frictions, camphorated mercurial ointment, electricity, &c. may be advised, for the removal of the induration of the epididymis and vas deferens.—Consult the works of Desault, Callisen, Schreger, Hunter, Abernethy, S. Cooper, Pott, Hey, Baillie, Bell, and Earle; Wadd “On Diseased Bladder and Testicle,” and Keates’ “Cases of Hydrocele.”

TETANUS, (from *τείνω*, to stretch.)—This disease is defined to be a more or less violent contraction of the muscles, attended with tension and rigidity of the parts affected. It consists of two species: 1st, *idiopathic*, or that occurring spontaneously; and 2d, *symptomatic* or *traumatic*, when arising in consequence of a wound or surgical operation. It is also divided by some authors into *acute* and *chronic* tetanus, the former being very rapid, and generally fatal, while the latter is more slow, and affords time for the operation of curative means. When the spasm is confined to the jaw, it is called *trismus*, or *locked jaw*; when all the body is affected, and becomes rigid, but retains its straightness, it is called *tetanus*; when both these are combined, it is termed *complete tetanus*; when the muscles of the front of the body only, so as to draw it forwards, *emprosthotonos*; when those of the back, *opisthotonos*; and when the body is drawn to one side, *plurosthotonos*. The limbs are also affected by spasmodic contractions.

Symptoms.—Stiffness of the back of the neck and jaws, with an uneasy sensation at the root of the tongue; difficulty in swallowing, which in some cases becomes impossible from the fixed state of the jaws, and in others, from affection of the muscles of the throat, œsophagus, &c. inasmuch that even a bougie cannot be passed down, and the patient is unable to receive food or medicine. There is often a severe pain at the end of the sternum, shooting thence towards the back. The spasms recur about every ten or fifteen minutes, attended with the most excruciating agony, when after a short time they abate, but do not entirely cease, and are instantly brought on again if the patient attempt to speak, swallow, or perform any motion. The appetite, the secretions, and other functions of the body, often remain unimpaired, except the bowels, which are commonly costive, owing perhaps to the quantity of opium usually administered. The spasms increasing in severity and frequency, soon reduce the patient to a most deplorable state; the countenance becomes distorted; the eyes fixed and sunk; and cold sweats and death close the scene. This disease principally occurs in hot climates; the symptomatic now and then happens in northern latitudes, but rarely ever the idiopathic. The principal causes are, great fatigue; exposure to cold and wet while the body is much heated; excesses of all kinds; irritation in the stomach and bowels

from worms, &c. ; affections of the mind. All these may excite tetanus spontaneously. The wounds more particularly apt to induce it, are those where tendons, &c. are punctured and torn, or where a nerve is partially divided ; also, gun-shot wounds, and injuries of the fingers and toes. In these cases, the symptoms come on in about eight days after the receipt of the injury, while the former invade the patient three or four days after the exposure. The symptomatic cases are the most curable.

Treatment.—This is extremely various and generally very unsuccessful. Some authors advise copious bleedings and other evacuations. Dr. Rush and others, (see *Tran. Amer. Phil. Soc.* vol. ii) are in favour of wine, bark, cordials, and stimulants, besides diluting the wound and promoting suppuration by applications of warm turpentine, &c. Some prefer a speedy salivation, and others, again, repeated submersion in the cold bath, which seems to be admitted to be much more successful than the warm. The practice of M. Larrey, who accompanied the French army to Egypt, was very successful. It principally consisted of emollient applications to the wound, with nitre, opium, and camphor, internally. He gave all his medicines in sweetened emulsions, which he says the patients could swallow with more ease. When fever was present, he let blood. It was a valuable remark of his, that when perspiration occurred on the head and extremities, it was symptomatic ; but when upon the chest and abdomen, it always proved critical. The hot bath, blisters, moxa, &c. he found useless. He is also in favour of amputating the injured part ; but this latter resort has been generally opposed by others. Opium, when given, should be in very great quantities, as it rarely produces any drowsiness ; and when, in consequence of spasms, nothing can be introduced into the stomach, it must be exhibited in clysters, for in severe cases there is often such a dread of liquids, that convulsions are excited when attempts are made to swallow them. Mr. S. Cooper says, from all he has read, the facts are in favour of the following plan. 1st. Removal of the wounded part, and exhibition of opium, camphor, musk, and other antispasmodics. 2d. Cold bathing and opium. 3d. Cold bathing and strong stimulants, as volatile alkali, brandy, spices, &c. 4th. Mercurial frictions, practised so as to induce a rapid salivation. If a nerve be partially divided, it should be severed by the surgeon, without loss of time ; and fragments of bone, when causing irritation, should be removed. It is usual in warm climates to apply to amputated stumps and other wounds a mixture of tincture of opium, and to excite a gentle salivation, as prophylactics. A case has been favourably treated with prussic acid, by Dr. Niles, of Boston.

It has of late been presumed that the acetate of lead would exert a

marked influence in restraining the tetanic spasm, given in such quantities as to risk paralysis, which would become a subject of future treatment, after the imminent danger attached to tetanus had subsided. The rationale would resemble that which dictated the use of prussic acid, that is, the employment of a sedative so powerful as to overcome the tendency to spastic action, evinced in this disease. The relaxing effects of tobacco clysters, and also the use of turpentine enemata, have not proved so beneficial as anticipated by their advocates.—Consult Rush's "Observations on the Cause and Cure of Tetanus;" Larrey's "Memoires de Chir. Militaire;" Reid "On the Nature and Treatment of Tetanus;" and Sir A. Cooper's Surgical Essays.

Trismus Nascentium, or Locked Jaw of Infancy.—This is a very fatal disease, and is chiefly met with among the negro children of the West Indies, and occurs about the ninth day from birth. It is generally confined to the muscles of the jaw, though other muscles are occasionally affected. Strabismus and subsultus tendinum are sometimes present. Its causes are said to be, retention of the meconium, dividing the navel string with blunt instruments, using violence in effecting its separation from the child, and neglect of the sore afterwards.

Treatment.—The disease being in almost every instance fatal, it is of the utmost importance to prevent it, by avoiding the causes just enumerated. Besides the proper management of the navel string, and keeping the bowels freely open with castor oil, the mother and child should be well nursed, and kept in a warm, dry, comfortable apartment, and a solution of opium frequently applied to the cord. Should an attack come on, opium and other antispasmodics, as advised for tetanus, may be prescribed.—Consult Dr. Clarke "On Diseases of the West Indies."

TETTERS, (Herpes.)—This is an eruption of broad itchy spots upon the skin, of a whitish or red colour, which run into each other, discharge a thin serous fluid, and cause excoriations or ulcers. After a time scurfy scales appear, and peel off. The same appearances are soon renewed in a successive series, often continuing for a long time. It may be caused by bad diet, want of cleanliness, &c. and is sometimes constitutional. The ointments of zinc and white precipitate of mercury, and washes prepared of the same, are most useful. We may use internally, blue and plummer's pills, decoction of sarsaparilla, sulphuric acid both internally and externally. An ointment formed of 3ss of sulphuric acid to ℥i of lead, has been frequently employed with advantage. The warm bath, a milk diet, and pure air, are useful auxiliaries.

THRUSH, Chronic, (Aphtha Chronica.)—This disease is prevalent in the West Indies, but may occur in any climate, when cold is combined with much moisture, or when the soil is marshy. It occurs for the

most part in the advanced stage of fevers, &c. marking debility and exhaustion; and although sometimes considered idiopathic, yet such cases arise from a disordered state of the stomach and bowels.

Symptoms.—Preceded by a burning heat in the stomach, pimples about the size of a pin's head appear upon the tip and sides of the tongue, which spread over the whole inside of the mouth, causing so much soreness, heat, and pain, that the patient is unable to take any article of hard or stimulating food. There is also fever, a remarkable dryness of the skin, languor, small pulse, sense of coldness, and particularly of the extremities. These symptoms, although the patient is occasionally temporarily relieved by acid eructations and purging and vomiting of acrid matter, may continue many weeks, greatly distressing and emaciating the patient, and sometimes proving fatal.

Causes.—General relaxation; cold combined with moisture; obstructed perspiration, especially occurring in old and debilitated habits. The eruption exists throughout the intestinal tube.

Treatment.—The first step is to evacuate the stomach and bowels, by emetics and purges, which must be repeated as often as there appears any necessity for their use. We are next to allay acidity by absorbents, and to restore the tone of the digestive functions by means of bark, wine, cordials, and bitters, together with a diet of arrow-root, jellies, soups, &c. As auxiliaries, sudorifics, to restore the deficiency of perspiration, and alteratives, such as the plummer's and the blue pill, to correct the other secretions, may be prescribed. Diarrhœa, when too severe, must be checked with opium and astringents. Gargles, composed of alum, borax, &c. should be used frequently; and clysters of veal broth, decoctions of linseed, mucilage of acacia gum, occasionally thrown up the rectum. Warm clothing, gentle exercise, &c. may be added. Those cases which come on in the latter part of fevers, generally require cordials, stimulants, and absorbents, for their cure.

THRUSH IN INFANTS, (Aphthæ.)—The difference is not material between this disease and that just described, as it for the most part arises from acidity, acrid matter, worms, and other sources of irritation in the alimentary canal. Bad air, bad nursing, milk from an unhealthy mother, and coarse food, exposure to cold, &c. are sufficient to induce a state of the system favourable to its production. It requires the same treatment as the former.

TIC-DOULOUREUX, (called by Dr. Fothergill, Faciei morbus nervorum crucians, and by Sauvages, trismus dolorificus.)—A painful affection of the nerves of the face. This is a disease excruciatingly painful, coming on by sudden and frequently repeated paroxysms, with intervals of perfect ease. Its extreme severity will distinguish it from toothache and all other diseases. Its seat seems to be in the substance

of the nerve affected, but whether it be inflammation or otherwise, is not exactly understood. The nerves most frequently affected are the ramifications of the portio dura of the seventh pair, passing over the face, and the filaments of that branch of the fifth pair which issue from the infra-orbitary foramen. It has also occurred in the nerves of the finger. There are no external marks of disease.

Treatment.—Frictions, blisters, electricity, opium, and a number of remedies have been unsuccessfully tried in this disorder, and the only cure seems to be, that of cutting off the communication between the part affected and the brain, by an actual division, and in some instances by removing a portion of the nerve itself. Late authors, however, apprise us that many suspected cases are nothing more than a high degree of rheumatism, depending upon a disordered state of the primæ viæ, and that consequently cures have been effected by emetics, purges, blue pill, bark, &c. Those cases said to be cured with carbonate of iron and calomel purges, were probably of this kind.

It may not however be denied that many failures have attended even the operation; in many cases a particular nerve has been divided, when nearly all the nerves of the face have been affected, or especially those of the portio dura, and the disease has therefore returned in all its original severity. Richerand, Delpech, and nearly all the French surgeons, reprobate the practice of the excision of a nerve, and express a preference for the actual cautery or moxa; and in their experience this treatment has proved of decided benefit. Sir A. Cooper recommends in those cases where a division of the nerve has been determined upon, that the infra-orbitary nerve should be cut across about a quarter of an inch below the orbit. The super-orbitary nerve should be divided just where it passes out of its foramen. The inferior maxillary nerve, by cutting down to the foramen mentale, on the inside of the lip, directly under the bi-cuspid tooth.

The nerve of the finger has been divided by Mr. Abernethy with partial, and by Mr. Lawrence and Sir A. Cooper with complete success, in cases of tic-doloureux in that extremity.

It is evident from the preceding observations, that much doubt remains on the propriety of treatment in this most painful disorder. The records of experience have done little in assisting the practitioner, so much do they vary in their result, and hence the subject may be considered at the present day as open to speculative opinion and experiment.

TIN, (*Stannum.*)—See *Metals.*

TINEA CAPITIS.—See *Scald Head* and *Cutaneous Diseases.*

TOBACCO, (*Nicotiana.*)—*Tabaci Folia*, or the leaves of tobacco. An annual plant, the growth of North America, Asia, and some parts

of southern Europe, of the class pentandria, and order monogynia. Its component parts are mucilage, gluten, albumen, extractive matter, a bitter principle, an essential oil, nitrate of potass, which occasions its deflagration, muriate of potass, and a peculiar proximate principle, discovered by Vauquelin, and upon which its properties are presumed to depend, termed *nicotin*. Tobacco yields its active virtues both to water and spirit, but more perfectly to the latter. An oil of the most powerful and deadly character may be procured, by distilling the leaves and separating it from the water, on which it will be found to float. In medicinal use, it is powerfully narcotic, sedative, diuretic, emetic, errhine, and may be regarded in an over-dose as one of the most violent vegetable poisons, whether applied externally, or administered internally.—(See the Chart of Poisons.) M. Orfila has demonstrated that the action of tobacco is much more energetic when the soluble portion is injected into the anus, than when it is applied to the cellular texture, and for a still stronger reason, than when introduced into the stomach. As a powerful sedative, it is sometimes exceedingly valuable in overcoming the resistance of muscular force in the reduction of dislocation or the return of hernia; and also in cases of obstinate constipation dependent on spasmodic constriction, or in ileus. In these cases, clysters of the smoke of tobacco, or an infusion made by $\mathfrak{z}\text{i}$ of the leaves in a pint of boiling water, and throwing up one half the quantity in the first place, will frequently accomplish the desired purpose. It has been proposed by some writers to administer tobacco injections in difficult parturition, for the purpose of inducing a relaxation, and consequently a dilation of the os uteri; but the practice is fraught with danger, and should never be attempted. The mere external application of tobacco to the surface, in cutaneous diseases, has been attended with alarming consequences, and therefore however valuable it may be in some cases as a medicinal agent, its use must always be accompanied with great caution.

TOLU, (*Toluifera*.)—A tree of South America, of the class decandria, and order monogynia, from whence the balsam (balsamum toluatum) is obtained. This is the mildest and most agreeable of all the balsams; in operation, stimulant and expectorant, in doses of from gr: xv to $\mathfrak{z}\text{ij}$, triturated with mucilage, and administered in coughs and hoarseness.

A syrup of tolu is prepared, of which from $\mathfrak{z}\text{vj}$ to $\mathfrak{z}\text{iv}$ may be added to any demulcent draught, and also a tincture, $\mathfrak{z}\text{ss}$ to $\mathfrak{z}\text{iss}$. This balsam also enters into the composition of the compound tincture of benzoin.

TONGUE, (*Diseases of*.)—*Inflammation*.—This may arise spontaneously, though it commonly proceeds from excessive salivation, or the small pox. The inflammation and swelling is so enormous, and so

rapid, as to interrupt deglutition and respiration, and even actually to cause suffocation. Such cases require the most energetic employment of blood-letting, purging, and other means advised under inflammation. It may be also necessary to apply blisters to the neck, and to open the raninal veins; but the most effectual way of relieving the patient, is to make a longitudinal incision on each side of the dorsum of the tongue, from one to two inches in length. A copious bleeding follows, attended with great relief. Should suppuration or mortification ensue, these results must be treated accordingly, and frequent washing with emollient gargles will be proper. The exciting cause must be removed or obviated. Mercury should be instantly discontinued; if it occur from small pox, the pustules should be opened; if from foreign bodies, as fish-bones, &c. they must be extracted. Food and medicines may be conveyed into the stomach, by means of an elastic bougie, passed down the nostril into the œsophagus.

ULCERS, INDURATIONS, &c.—Ulcers are sometimes seen on the tongue, of a very foul, painful, obstinate, and malignant looking kind, which are entirely produced by a sharp, rough-edged, or carious tooth. This is easily ascertained by examination, and also easily remedied by filing down or extracting the tooth. A disordered state of the primæ viæ will sometimes cause these ulcers, when emetics, purges, and alteratives, are necessary. The frequent application of leeches is also useful in some cases. Where taking cold during the use of mercury has been the cause, the mercury must be suspended, the patient kept in a warm, dry room, and gentle purging, with mild gargles, employed.

CANCER OF THE TONGUE.—Many ulcers, deserving the epithet malignant and cancerous, are not unfrequently formed on the tongue; sometimes appearing in its incipient state as a sore, and sometimes as a circumscribed moveable or immoveable scirrhus swelling, which gradually becomes painful and ulcerates. Again there may be a mere induration without swelling. All these cases are surrounded by the peculiar hardness, and attended by the lancinating pain of cancer, and chiefly make their appearance on the sides and apex of the tongue. In some instances, the whole or a large portion of the surface of the organ has been seen covered with numerous small scirrhus tubercles, which gradually fall into a state of ulceration. These, Mr. Cooper says, he has seen much diminished by mercury. Indeed, in all the cases just mentioned, cicuta, and other means for the relief of cancer, should be tried, before resorting to the knife. The state of the primæ viæ should also be particularly attended to. However, much time should not be lost in the trial of remedies, when the disease is not benefited or appears upon the increase.

The Operation.—The point which chiefly claims our attention, is the hemorrhage which follows the operation. For the suppression of this, we must be fully prepared before hand. The surgeons upon the European continent, in these cases, rely almost exclusively upon the actual cautery. Still, however, as Mr. Cooper says, it may be possible to put a ligature about the vessels, by means of two pair of forceps, after having drawn them out with a tenaculum. If this should fail, pressure and styptics, as a strong solution of alum, diluted sulphuric acid, &c. may be tried, and rather than the patient should die of hemorrhage, the trunks of the lingual arteries must be tied as they pass over the os hyoides. In all cases, it is of the utmost importance that the whole diseased mass be extirpated. The French surgeons frequently apply the cautery, to destroy all vestiges of the complaint, but caustic will in general suffice. In beginning the operation, the mouth must be kept asunder by placing some firm substance between the teeth; the tongue is next to be drawn out of the mouth, either with the fingers of an assistant and a dry towel, or a pair of flat forceps, which M. Louis has advised. When the disease is situated far back, the tongue should be seized with a pair of hooks. A complete excision of the diseased mass is now to be accomplished with a bistoury. When the disease is extensive, it may be necessary, for the preservation of the patient's life, to amputate the tongue to a more or less extent; for instances are upon record, where the remaining portion has exercised the functions of the organ in a tolerable degree. The removal of the part has also been effected by means of a ligature. This is at least a very painful, if not an inefficacious operation. It is performed by passing a needle, with a strong double thread, through the whole thickness of the organ, a sufficient number of times to enclose and completely insulate the affected mass, which after some days sloughs off. When the disease is very extensive, and the lymphatic glands below the jaw are contaminated, it is too late to perform any operation. The palliative treatment is all we can resort to in such cases.

TUMOURS OF THE TONGUE.—Encysted tumours of this organ are mostly of the malignant kind, and should be carefully dissected out with a tenaculum and scalpel, and if possible, without opening the cyst.

The glandular papillæ upon the dorsum of the tongue, which naturally terminate with a broad head, supported by a narrow base, not unlike a mushroom, sometimes enlarge to a great degree. They are easily removed with the knife or ligature.

PRETERNATURAL ENLARGEMENT.—This is either the effect of original malformation, or some chronic disease, and if no bad effects arise, the surgeon should not interfere; but if mastication, swallowing,

or respiration, be much impeded, it will be proper to remove such portion of it as practicable, more particularly if the part to be operated upon be well within the reach of the operator. M. Louis has contributed much information on these subjects in the *Memoirs of the French Surgical Academy*.

TONGUE-TIED.—This depends, either upon the frænum extending too near its apex, or from its being too short, so as not to allow of the tongue's due elevation. The former is by far the most frequent, but both cases alike impede sucking and articulation. The operation for dividing the frænum linguæ should never be performed unless the child is unable to suck, and even then not till an accurate examination of the mouth has been made, for the difficulty may arise in consequence of adhesions of the tongue to the sides of the mouth, (which could be easily separated with a spatula) or from the nipple of the nurse being very large. In the latter case, by improperly dividing the frænum, the tongue may lose its equilibrium, so as to fall over into the throat and endanger suffocation. The same may also happen if the preternatural membrane be divided to too great an extent, for the division should not be more than is necessary to remedy the defect in sucking or articulating. A pair of sharp scissors, with blunt points, is the best instrument, when if the tongue be gently raised with the fore finger of the surgeon's left hand, the operation can be immediately accomplished. He must be a very careless operator who wounds the raninal arteries; nevertheless, it has been done, and children have bled to death in consequence; but the raninal veins may be wounded, and even from the small vessels of the divided membrane the hemorrhage has been fatal. The child finding a fluid in its mouth, makes efforts to suck, by which the bleeding is kept up, and the blood is swallowed, consequently there may be no suspicion of the nature of the case until it is too late. The stomach after death has been found full of blood in such instances.

M. J. L. Petit, who found all styptics and other remedies fail in arresting the hemorrhage, invented a very ingenious contrivance. It consists of a small forked piece of birch, the prongs of which are eight lines long, the handle four. This is to be covered with a piece of linen, and placed under the tongue in such a manner, that the end of the handle will rest against the concavity of the under jaw, while the prongs embrace and make pressure upon each side of the frænum. The tongue is to be fixed by applying the middle of a roller far back on its dorsum, and the ends, after crossing each other under the chin, pinned to the child's cap. The same bandage may be used for confining the tongue when from any cause it is disposed to fall back into the throat. It is to be taken off when the child is put to the breast, after which it must be re-applied. Should the tongue fall over into the

throat during these operations, it can be easily reduced with the fore finger. The mother should be instructed to do this, as delay will very probably be attended with suffocation.

TONICS, (from *tonow*, to strengthen.)—Those medicines which increase the tone of the muscular fibre ; they are derived both from the vegetable and mineral kingdoms, the former being generally bitter, and producing their effects by a primary action on the stomach, whilst the latter, comprehending several of the metals, appear in some instances to pass into the circulation, although some, like the vegetable tonics, act in the first instance on the *primæ viæ*.

TONSILS, *Inflammation of*.—Tonsillitis.—See that subject under the head of *Inflammation*.

TRACHEOTOMY, (from *τραχεια*, the trachea, and *τεμνω*, to cut.)—The operation of cutting an opening into the wind-pipe.—See *Bronchotomy*.

TRANSFUSION, (from *transfundo*, to pour from one vessel into another.)—The transmission of the blood of one individual into the veins of another. This operation, that once excited so much attention, from the presumption that it would restore the wasted powers of existence in age or disease, has nearly fallen into disuse. To the obstetric practitioner, it however offers an invaluable resource after severe flooding, when all other means have proved useless in rallying the system ; the same, perhaps, may be observed after copious hemorrhage from wounds, whilst its use must be altogether denied in those cases where disease prevails, and for which this practice is a hazardous if not a destructive remedy. When it is necessary to perform the operation, it is accomplished by means of an apparatus, that enables the surgeon to command the flow of blood, and to regulate his proceedings with great exactness.

TREPAN.—A circular saw, used in perforating the cranium, and worked with a circular motion in the manner of a carpenter's centre-bit, to which the instrument bears a resemblance. It is now superseded by the use of the *trephine*, which has a handle similar to that of a corkscrew, and admits of being worked by the hand, and with far greater accuracy. For the operation of trephining, see *Head*, injuries and diseases of.

TRICHIASIS, (from *τριξ*, a hair.)—A disease in which the eyelashes are turned in towards the bulb of the eye.

TRISMUS, (from *τριζω*, to gnash.)—Locked jaw.—See *Tetanus*.

TUBERCLE, *Tuberculum*, (the diminutive of *tuber*, from *tumeo*, to swell.)—This term has in general been applied to minute prominences ; though when accompanied with inflammation, they are usually called papulæ or pimples, and when filled with a limpid fluid, vesicles ; and if

the vesicles, or rather the vesicular cysts, be supposed to possess an independent or animalcular life, hydatids.

Tubercles, in their effect as well as in their minuteness of size, may be considered as the seeds of by far the greater number of tuberosities, unaccompanied by inflammation, that exist in the body; and it is not improbable that even a certain degree of inflammation itself is often favourable to their growth and general spread.

There is not an organ in the body but is capable of producing in its substance or its parenchyma, some description of tubercles. The peculiar formation developed in the lungs, and tending to tubercular phthisis, are described under the article *Lungs*, diseases of. In the liver, a variety of these substances have been observed: the large white, the soft brown, the serofulous, the scirrhus, the hæmatoid, and the melanoid tubercles. They are likewise detected in the spleen and the kidneys, the uterus, and even in the brain. In the common marasmus of children, in which the mesenteric glands are the chief seat of disease, we likewise find them existing.

The formation of tubercles, as they appear on the various organs of the system, may be traced, in the great majority of cases, to the existence of serofula or scirrhus; and in those instances where they appear independent of these specific affections, they are usually the result of inflammation; the melanoid tubercle, for instance, succeeding to bronchitis, the tubercle of the lungs to pneumonia, and the common tubercles of the liver to hepatitis, the product of carelessness and intemperance.

TUMOURS, (*Tumores*).—This term may be restricted, according to Mr. Abernethy, the able author of “A Classification of Tumours,” to such enlargements as arise from some hard production, which made no part of the original composition of the body, by which he excludes all simple swellings of bones, joints, glands, &c. and admits only of two great varieties, the *sarcomatous* and *encysted* tumours.

Some glands, however, it is admitted, are enlarged, owing to a tumour growing in them, condensing the natural structure of, or causing the absorption of the original gland. Sometimes also, the disease of the gland seems to produce an entire alteration of structure in the part; the natural organization being removed, and a new-formed diseased structure substituted in its stead. In either case, the disease of the gland is designed to be included in the above definitions. The same author informs us, that all tumours are formed from a coagulum of blood which has become extravasated, either by accident or disease. This, if not removed by the absorbents, becomes regularly organized by vessels and nerves from the adjacent parts shooting into it, either through the neck, in pendulous tumours, or irregularly from all parts of its attachment in those of diffused base. The kind of disease formed is

probably dependent upon the predisposition existing in the system, by hereditary taint or other causes. In those tumours when the diseased action is confined to its own sphere, and merely draws a supply of blood from the healthy surrounding parts, extirpation of the tumour effects a cure; but when the adjacent parts partake of the same action with the tumour, they too must be included in the operation, or a re-appearance of the disease may be expected. The growth and pressure of the tumour upon the adjacent cellular substance, forms for it a capsule, and when the tumour has been painful, tender, and inflamed, it is found more adherent to the neighbouring parts, and their increased irritation after attaining some magnitude, is the reason why they then grow more rapidly. The growth of tumours is supposed to depend upon an increased action of the vessels, and has been termed *chronic inflammation*, from its slowness.

The growth of tumours may sometimes be checked, and even diminished, by the application of leeches and cold saturnine lotions, and when the increased action is abated, by the use of discutients, as mineral preparations, frictions, pressure, liniments, issues, blisters, &c. But very few are entirely dispersed, and the remedies, sometimes, have the effect to bring on suppuration, followed by an ill-conditioned ulcer, rendering extirpation to a large extent necessary. The only practice then, is to remove all tumours early, before they acquire much magnitude, as the operation is of course less formidable than when they have attained a considerable size, and promises a fairer result.

SARCOMATOUS TUMOURS.—These are the kind of tumours which Mr. Abernethy has classified in terms derived from their anatomical structure; they are not enveloped in any perfect cyst, and are by him divided in eight orders, as follows:

1st, *Common, vascular, or organized Sarcoma.*—This order comprehends all those tumours which appear to be composed of the gelatinous part of the blood, rendered vascular by the growth of vessels in it, in the manner before described, and having no other peculiarity of structure like the other orders. This is the most simple structure, and which is the original state of all tumours, prior to their own vessels assuming their functions to develop that disease to which there exists a predisposition. As they grow large, the vessels upon their surface become varicose, and if neglected will ulcerate, and slough out, forming a natural cure. But so great is the constitutional disturbance, and the accompanying danger from hectic, that it is far better, in general, to remove them by an early excision.

2d, *Adipose Sarcoma.*—These fatty tumours are the most common, are surrounded by a thin capsule, not very vascular, and consequently are easily and safely removed.

3d, *Pancreatic Sarcoma*.—These resemble the pancreas, are composed of irregular shaped masses, connected by fibrous bands. They are most common in the female breast, on the side of the nipple next the arm. They are characterized by slowly and regularly increasing, not being prone to inflammation or tending to suppuration. Sometimes, however, they do inflame, attended with lancinating pains and adhesion of the integuments to the tumour, and the axillary glands enlarge, inflame, and then subside into chronic induration. Mr. A. did not find it necessary to extirpate more than the tumour in such cases.

4th, *Cystic Sarcoma*.—So named from its containing cysts, or cells, the cavities of which contain a serous matter. This variety is most common in the testes and ovaria.

5th, *Mastoid, or Mammary Sarcoma*.—This resembles the gland of the breast, is not very frequent, and generally lost in the surrounding substances, which probably retain a disposition to resume the disease. On this account, Mr. Abernethy advises their free removal.

6th, *Tuberculated Sarcoma* consists of an "aggregation of small roundish tumours, of various sizes and colours, connected together by a kind of cellular substance." Mr. Abernethy has chiefly seen this disease in the lymphatic glands of the neck. The tumours ulcerate, become painful and incurable sores, and destroy the patients. Indeed, it is so terrible a disease, that it may be deemed a fatal one; fortunately, it is uncommon.

7th, *Medullary Sarcoma*.—This more particularly affects the testicle, (see *Testicle, diseases of*,) and resembles the medullary substance of the brain, and is remarkable for being readily propagated along the absorbents. The inguinal glands are soon affected, enlarge to a very great magnitude, slough, and bleed profusely, which can only be suppressed by continual pressure. The gland at length heals, when another becomes affected, and goes through the same process. The disease extends into the abdomen, and the patient is destroyed. It has been supposed to be the same disease as *Fungus Hæmatodes*, which see.

8th, *Carcinomatous Sarcoma*, (see *Cancer*.)—This, Mr. S. Cooper says, does not properly enter into the above arrangement, and moreover cancer is not always a tumour, being frequently shrunk, and even smaller than in the healthy state.—See Mr. Abernethy's *Surgical Observations on Tumours, &c.*, J. Bell's *Surgery*, and Cooper's works.

ENCYSTED TUMOURS, (sometimes called *Wens*.)—These swellings are all contained in a cyst, or bag, of a firm consistence, sometimes quite thin, at others as thick as parchment, or even cartilage; in most cases, however, its thickness is proportioned to the age of the tumour. Though generally consisting of one cavity, yet they are sometimes

found intersected by several partitions. Encysted tumours are of three kinds, and designated according to their consistence, viz. 1st, *meliceris*, or those containing a fluid, or honey-like matter; 2d, *atheroma*, when of a pap-like substance; 3d, *steatoma*, when fatty. Sometimes, when the tumour bursts, an ossified matter is thrown out, and what is remarkable, forms a complete horn; and Sir A. Cooper, in his lectures, exhibits one of this kind exactly resembling the horn of a ram! These tumours are not painful, are generally loosely situated just under the skin, and grow, if left alone, (particularly the steatomatous) to an enormous size. Some persons have an extraordinary disposition to encysted tumours; upwards of twenty have been met with in the same patient; the scalp seems more especially their seat, and of the atheromatous kind. They are frequent, also, upon the face of children, and upon the eyelids, when they cause ophthalmia and opacity of the cornea, if not removed. In these situations they are smooth, whitish, and often inflamed, suppurate, and gradually terminate. Notwithstanding this, it is always better to extirpate them than to promote suppuration, as a troublesome sore is often the result. Attempts for discussing them scarcely deserve attention. Common sea salt, sea weed, muriate of ammonia, have all been proposed for this purpose.

The OPERATION for removing tumours consists in making an incision through the skin in the direction of the muscular fibres, across the tumour, and carefully dissecting it out; taking care that the cyst is not opened during the operation, and that every part of it is removed. When the tumour is large, it is proper to make a double elliptical incision, in order to remove a portion of integuments, which facilitates the operation; and cicatrization is more ready, than when a redundancy of integument is left. Any large vessels that are wounded must be tied. The tumour being removed, and the blood cleansed from the wound, its lips are to be brought together, and united with sutures or adhesive plaster, secured with bandages. The first dressings are not to be removed for several days.

TURPENTINE.—See *Oils*.

TYMPANITES, (from *τυμπανον*, a drum.)—This is an extreme distention of the abdomen, from an accumulation of an enormous quantity of wind; the abdomen, upon percussion, sounds like a drum, or bladder filled with air; hence its name. It consists of two species, 1st, *tympanites intestinalis*, when the flatus is confined to the intestines only; and 2d, *tympanites abdominalis*, when the air has escaped from the intestines into the cavity of the peritoneum, in consequence of erosion, which erosion is the effect of other diseases.

Symptoms of the first species.—Sometimes it comes on suddenly, at others slowly, preceded by great flatulence, borborygmi, expulsion of air,

colic pains, dyspepsia, great swelling of the belly, which retains the same figure under every alteration of position, is elastic, and without fluctuation. In an advanced stage, there arises difficulty in voiding the urine, costiveness, pyrexia, and general emaciation, together with cough, difficult respiration, increase of swelling, and at length dropsy or gangrene ensues.

Causes.—Sudden suppression of long continued discharges, as chronic diarrhœa, issues, &c. repelled eruptions; use of crude vegetable aliment, &c.

In the *second species*, the swelling is more general, equal, and elastic; the tension is greater, and there is but little or no discharge of flatus. The tension, elasticity, and drum-like sound upon percussion, will distinguish tympanites from all other diseases. It is generally very obstinate.

Treatment of the first species.—The indications are, to evacuate the accumulated air by frequent mild purges; by emollient clysters exhibited twice or thrice a day, and by frictions and rubefacients applied to the abdomen. Warm plasters, and pressure by means of a laced flannel waistcoat, may be advantageously added. The next purpose must be to prevent a re-accumulation of air, by restoring the tone of the stomach and bowels, by the usual remedies employed in dyspepsia, and by attention to diet, exercise, &c.

In the *treatment of the second species*, the same mode is generally advisable. It has been proposed to puncture the abdomen with a trochar, for the purpose of giving exit to the accumulated air; but this, at the best, is a practice attended with infinite risk. When this kind of tympanites is fixed in the habit, it is usually fatal.

TYPHUS, (from τυφος, stupor.)—See *Fevers*.

ULCERATION, (from ελκος, a sore.)—The third termination of inflammation, consisting in a removal or destruction of parts by the process of absorption.

ULCERS.—By an ulcer is meant a breach of continuity, or chasm in the soft parts, attended with a secretion of pus or other discharge. This chasm is a loss of substance, in which the old substance is taken up by the absorbents, more quickly than the new is formed by the secreting arteries; by wounds which have failed to heal by the first intention, or in consequence of mortification. There are many divisions and distinctions of ulcers, but the arrangement of Mr. Cooper may be preferred in dividing them into five kinds, viz. the *healthy*, the *irritable*, the *indolent*, the *varicose*, and the *specific*. This division is analogous to that of Sir E. Home, (see his *Prac. Observ. on Ulcers of the Leg*) except that he makes a variety of the *indolent* ulcer, which he considers as depending upon weakness of the part.

1st, *Healthy Ulcers*.—These secrete white, thick pus, which does not adhere to the surface; and their granulations are small, florid, have pointed tops, and soon cicatrize. These ulcers being in a healing state, the surgeon has only to keep the parts clean, and to apply dry lint over a simple ointment, a bandage to retain the dressings and give a slight support to the muscles.

2d, *Irritable Ulcers*.—These are characterized by a jagged margin, terminating in a sharp undermined edge; the bottom of the ulcer is made up of concavities of different sizes, and the granulations are white and spongy, covered with an ichorous discharge, painful, and disposed to bleed when touched. This irritation may be constitutional, from a bad state of the primæ viæ, &c.

Treatment.—Emollients, as the steam of warm water, poultices, fomentations of poppy heads, &c. Sedatives, as extract of hemlock and opium, dissolved, and used as a fomentation; also, the solution of opium, (a drachm and a half to a pint of water) as a wash. Solutions of lead, or nitrate of silver, &c. Ointments and bandages are not generally useful, as they make too much pressure. Alteratives, change of air, &c. will be required when the health is impaired.

3d, *Indolent Ulcers*.—These are frequent in the London and other large hospitals, and are, in appearance, the reverse of those just described. Their edges are round, smooth, and prominent; the granulations smooth and glossy; the pus imperfectly formed, mixed with coagulable lymph, and adhering to its surface. These appearances sometimes vary, and the ulcer may somewhat resemble the irritable. The granulations are weak, and are often suddenly absorbed without any obvious cause, except that they are of a loose flabby texture. Poultices are not good applications, for the granulations produced by them being weak, and liable to be absorbed, if the ulcer heal, it is very apt to break out again; and the same may be said of emollients generally. However, emollients may be proper for a few days, to reduce what inflammation may have been created by walking, or a neglect of cleanliness. Stimulants seem to be the best applications, and accordingly ointments are sometimes employed, containing resinous gums, red precipitate, &c. also diluted nitric and vitriolic acids, solutions of nitrate of silver, tincture of myrrh, &c. Some years ago, Mr. Wheatley, (see his *Prac. Observ. on Ulcers of the Legs*) strongly recommended pressure upon the limb, by means of a flannel roller carried from the foot to the knee. About the same time, Mr. Baynton, (see his *Account of a New Method of Treating Old Ulcers of the Legs*) published his method of applying strips of adhesive plaster, the excellence of which is now universally admitted. The strips are to be cut from two to three inches broad, long enough to surround the whole

limb, and must be evenly and regularly laid on, one above another, as tight as the patient can well bear, until the whole entire surface of the ulcer is covered, from one inch below, to one or two above its bounds. A soft compress is then to be laid over the ulcer, confined with a cotton roller, carried from the foot to the knee. The whole is to be kept wet with cold spring water, which prevents inflammation, and allows the plasters to be readily taken off. By this method, the soft granulations are kept down upon a level with the edges of the wound, which is very favourable to healing. It also approximates the sides of the ulcer, and renders the cicatrix more sound and durable, and less extensive. The patient is able, in many instances, to pursue his ordinary business. The system may require bark and other tonics in some of these cases.

Varicose Ulcers.—These ulcers are attended with, and kept up, by a varicose state of the veins of the limbs. They are chiefly situated on the inside of the leg, near the ancle or instep; their edges high, callous, and painful to the touch, are of a brownish red colour, which extends some way beyond its margin. The pain and swelling is always increased by walking, standing, &c. and the reverse when in a horizontal posture. Small distended vessels, or tumours, are always to be seen near the sore, sometimes insulated, at others congregated.

Treatment.—The varicose state of the veins being the obstacle to recovery, numerous expedients have at different periods been resorted to, to remedy this evil, such as excision of the varices, tying the veins, and compression.—See Dis. of the Veins, under *Heart*, &c. diseases of.

Specific Ulcers.—With these is complicated some peculiar morbid action, either owing to the state of the constitution, or to some peculiarity in the part itself; such as scrofula, lues venerea, cancer, &c. There are numerous other ulcers arranged under this head by Sir E. Home, without any distinct appellation, some of which yield to mercury, some to arsenic, others to hemlock, &c. A summary of which may be found in S. Cooper's Surg. Dict.—Consult Baynton, Wheatley, Home on Ulcers, B. and J. Bell's Surg., Hunter on the Blood, &c.

ULCER, Phagedenic.—An ulcer which spreads and eats away the flesh.—See *Venereal Disease*.

UNGUIS, (from *ovvξ*, a hook or nail.)—A collection of pus between the lamellæ of the cornea, so called from its resemblance to the lunated portion of the nail of the finger.—See *Eye*, diseases of.

UNION by the **FIRST INTENTION**.—This process is said to take place, when the opposite sides of a wound are brought into contact, and grow together at once without suppuration. It was formerly believed, that red blood effused from the vessels became organized, and formed the bond of union; but this idea is now abandoned, and it is advised, at all times, to remove as much of the loose blood as possible

before closing the wound. The union is effected by means of the adhesive inflammation. When any part of the body sustains an injury, albumen, or as it is usually called, coagulable lymph, is thrown out by the surrounding vessels; into this, arteries, veins, nerves, and absorbents, shoot, and completely organize it; and thus it becomes a bond of union between the divided surfaces. The powers of nature in this particular are strikingly exemplified by numerous cases upon record. The wound caused by amputating the thigh, has completely united in three days. The experiments, too, of Mr. Hunter in planting the spur of a cock into his comb, and also engrafting the testicles of the same animal into the abdomen of another, where they immediately grew, are well known. In attempting this kind of union, we are, 1st, to check hemorrhage by tying vessels or otherwise; 2d, to cleanse away the blood, and all extraneous matter; 3d, to unite the edges of the wound evenly, retaining them by strips of adhesive plaster, placed at the distance of about a quarter of an inch from each other, in order to favour any discharge of blood; to apply sutures, *if necessary*, and also compresses and bandages, placing the parts at the same time in a proper position, so as to relax any muscular fibres that may have been divided. No medicaments should be applied to the wound, but spirits and evaporating lotions may be used over the dressings, should there be much warmth of the part; for the adhesive inflammation is of so mild a character, that when heat, pain, redness, and throbbing ensue, we may be sure suppuration has commenced, which must be immediately treated by the removal of the sutures, sticking plaster, &c. and by the application of a poultice. Rest, and the general measures of antiphlogistic treatment, must of course be added.

URETHRA, (from *ουρον*, the urine, because it is the canal for the transmission of that secretion.)—Diseases of.—See *Urinary Passages*.

URINARY PASSAGES, *Diseases of*.

NEPHRITIS, (*Inflammation of the Kidneys*.)—This disease is usually occasioned by those causes that obstruct the flow of the fluids in the vessels of the kidneys; as a wound, contusion, tumour, strain of the muscles of the back that press on those organs, an excess of horse exercise, and various acrids conveyed to them through the circulation. It is, however, generally experienced as a secondary disease, resulting from the pressure of calcareous matter blocking up the tubuli uriniferi, or from calculi formed in the pelves of the kidneys.

The *symptoms* are, pain in the renal region, frequent micturition, vomiting, numbness of the thigh on the affected side, and retraction of the testicle: the skin is dry and hot, the bowels costive, and motion and the erect position cause considerable pain. This last symptom distinguishes it from an inflammation of the psoas muscle, while the

exact seat of the pain is sufficiently diagnostic between this disease and colic. When the inflammation is violent, the urine, though frequently discharged, is small in quantity, and of a pale hue, and therefore when we observe that secretion in a larger quantity, thick, and mixed with mucus, a gradual relief may be expected, and a cure denoted by the full urinary return. Should the symptoms continue beyond the seventh day, and a sense of stupor and heaviness succeed to the acute pain, with attacks of chilliness and shivering, an abscess will in all probability ensue, the contents of which may be discharged into the pelvis of the kidney, which is the gentlest termination; into the abdomen, when recovery can scarcely be expected; or in cases of adhesion, externally through the integuments and skin.

A suppuration has in some instances been so considerable as to destroy the substance of the affected kidney, leaving nothing but the external membrane, and a patient has even recovered under these circumstances, the urinary office being accomplished by the remaining organ. Gangrene will also occasionally take place, indicated by a sudden remission of pain after great vascular action, accompanied with cold sweats, a sinking pulse, discharge of black urine, and soon followed by the evidences of approaching death. In all cases of inflammation of the kidney, complete recovery is very rare; there may be a long remission of the symptoms, but the slightest causes suffice for their return, and tend to a fatal result.

The *treatment* of nephritis resembles that of the majority of acute inflammations: in general, venesection may be had recourse to, following up the impression it has made on the system, by the application of leeches or the cupping glasses to the loins. The bowels should be well opened by the saline purgatives, and afterwards, oleaginous or mucilaginous emulsions, with small doses of nitrate of potass, or the tincture of digitalis be administered. The use of digitalis is indeed abundantly indicated, not only in depressing the extreme arterial action, but in augmenting the urinary secretion. The loins should likewise be covered with flannels wrung out of hot water, and copious emollient injections be thrown up the rectum, and retained as long as the patient can submit.

CYSTITIS, or inflammation of the bladder, exists in various degrees, from that slightest form which is indicated by a secretion of mucus from its lining membrane, to the intensely inflamed state which runs rapidly to gangrene.

1. *Acute Cystitis*.—Acute inflammation of the bladder is known to exist by burning pain in the region of that organ, pain at the extremity of the urethra, tenderness of the hypogastrium, and frequent calls to void urine, which is expelled in small quantities and with distressing

spasms. The local symptoms of inflammation are accompanied with the usual constitutional disturbance, ushered in by smart shivering, and denoted by a frequent and tense pulse, hot skin, thirst, loss of appetite, constipated bowels, and much restlessness. As the disease advances, the pains shoot from the bladder to the anus, the loins, down the thighs, and even to the epigastrium; complete retention of urine takes place, and the distended bladder is felt as an oval tumour rising tense above the pubes. The tenderness, which was at first confined to the hypogastrium, diffuses itself over the whole abdomen; obstinate vomiting of bilious fluid and hiccough take place; delirium comes on, coma or convulsions at length supervene, and death follows.

The urine, during the progress of the inflammation, undergoes several changes. At the commencement, it is high coloured, as in other inflammations; then becomes mingled with flakes of coagulated albumen, or with blood, bloody urine being more especially observed when the disease has been induced by a poisonous dose of cantharides: as the disease proceeds, the urine acquires a highly offensive odour, from its ammoniacal and putrescent condition, resembling more the washings of putrid flesh than human urine.

Inflammation of the muscular tunic of the bladder may arise either in the membrane itself, or be communicated from the adjacent textures. In some cases, the inflammation of this membrane has induced circumscribed suppuration; in others, the pus has been unfiltrated extensively among the muscular fibres of the bladder. Extensive abscesses have also been found between the muscular and peritoneal coats; and death has in this manner been produced in numerous cases of lithotomy. Chopart relates a very interesting case of large abscess around the bladder, which occurred in the practice of Moreau. In this case, that distinguished surgeon, after making an opening above the pubes, struck his bistoury into a suspected spot near the anus, and formed a counter-opening, by which he succeeded in saving his patient.

Inflammation of the peritoneal coat is often the close of a fatal disease of the bladder; but that it takes place under other circumstances, without any dangerous consequences, we have sufficient evidence from the old adhesions not unfrequently found connecting this part to the omentum, to portions of the intestine, to the uterus, or to the rectum. In a recent case of diseased prostrate, the omentum was found attached to the peritoneal covering of the upper fundus of the bladder.

Acute cystitis is caused by direct injuries, as by wounds, contusions, severe exercise on horseback, prolonged travelling in a carriage over rough roads, the introduction into the bladder of foreign bodies, as bougies and sounds; the latter are too often incautiously used; indeed, to the examinations made under such circumstances may, in some

instances, be traced the fatal result of the subsequent operation of lithotomy. Calculi themselves also produce cystitis, commonly of the mild or chronic form, or catarrh of the bladder. All mechanical obstructions to the discharge of the urine, as strictures of the urethra, enlargement of the prostate gland, and calculi lodged in the neck of the bladder, may prove causes of cystitis. It is induced likewise by exposure to cold and moisture, by excess in drinking, by the internal use of cantharides, and even by their application to a highly sensitive and partly abraded surface, as in Ambrose Paré's case of the lady who was cured of an obstinate eruption in the face by blistering.

The *treatment* of acute cystitis is to be commenced by free venesection and the warm bath, which may be followed by leeches to the perineum and groins. Should the bladder be much distended, its contents ought to be evacuated without delay; but until some impression be made on the local inflammation, the introduction of the catheter will be exceedingly painful, and productive of no permanent relief. A full dose of calomel ought to be given, combined with a grain or two of opium; and after some hours the bowels may be relieved by castor oil or an emollient enema. Free perspiration ought to be kept up by Dover's powder, and the cautious use of antimonials; while warm opiate fomentations or poultices, bags of heated salt, or bladders filled with hot water, are applied to the pubes and perineum. Diluents should be freely given, and the patient restricted to a spare diet of the mildest kind of food. When cystitis has terminated in the formation of abscess, this ought, if within reach, to be evacuated as early as possible by a free and depending opening; while the tendency to hectic is checked by cool air, tepid sponging, and the mineral acids, and the strength of the patient supported by gentle tonics and light nutritious diet.

2. *Chronic Cystitis*.—This form, which has also been called *mucous cystitis*, and catarrh of the bladder, was at one period considered an uncommon disease; the laborious and accomplished Hoffman designated it "*rarus vesicæ affectus*." It exists either in connection with a febrile state of the body, or with simple irritation of the bladder, or its adjoining and associated parts.

The *symptoms* of chronic cystitis are, frequent calls to void urine, with more or less pain in the region of the bladder, and at the extremity of the urethra, either before or during the process. There is also, in most cases, tension of the hypogastrium, which may depend either on increased sensibility of the bladder, or on distention from urine. In all cases, there is discharged along with the urine an increased quantity of mucus, somewhat altered from its natural appearance. The character

of the mucus is always alkaline, and the urine often of the same nature—ammoniacal, sometimes highly fetid.

The pathological changes discovered in cases of chronic cystitis are chiefly, injection of the mucous membrane, occasionally enlargement of the veins, and when the disease is of long standing, overgrowth and thickening of the mucous tissue. Ulceration is likewise often observed to have taken place at the close of the disease, when it has been severe and long protracted: on other occasions, acute cystitis has supervened on the catarrhal affection, presenting after death the usual marks of the disease.

Causes.—Chronic cystitis, or catarrh of the bladder, originates in many and various causes. It has sometimes occurred at the crisis of fevers, as the mode in which solution has taken place; in other instances, it has alternated with mucous discharge from the bronchi. Exposure to damp and cold, and to sudden variations of temperature, has given rise to the disease; it has also, as well as the acute form, originated from the translation of gout and rheumatism, and the repulsion of cutaneous eruptions. But its most frequent causes are calculus in the bladder, and enlargement of the prostate gland. It occurs much more rarely among the young than the old, and among females than males.

Treatment.—In gouty and rheumatic cases the administration of colchicum offers the best mode of cure. When the affection depends on an enfeebled constitution or scrofulous habit, the mineral acids, bitters, and astringents, will be found beneficial. Of astringent remedies, the best are uva-ursi, kino, and catechu. But in this form of the disease, more advantage is often derived from stimulants of the urinary organs, such as the turpentine, and above all, small doses of copaiba and eubee pepper. In such cases, also, change of air, and sea bathing on a dry and open shore have been productive of much benefit. The diet ought to be mild and nutritious, consisting of milk, eggs, farinaceous substances, and a moderate proportion of animal food. In almost all instances of this disease, spirituous liquors, even in moderate quantity, are injurious; cases, however, do occur when a small quantity of generous wine will be found beneficial.

All irritations of the sexual organs should be avoided; and if the patient have contracted improper habits, they must be abandoned before any hope of cure can be held out. The patient ought to spend much of his time in the open air, using gentle exercise: he should reside, if possible, in a dry and elevated situation, and ought to be always warmly clothed, wearing flannel next to the skin. More benefit will often be found to accrue from a careful adherence to these directions regarding diet and general management of health, than from the employment of

medicine. The injection of the bladder with mild diluents, such as barley-water, afterwards rendered more stimulant and astringent by the admixture of some mineral water, has been practised and highly recommended by Desault, Chopart, and others; and we are inclined to think that advantage may be derived from the mere distention of the mucous membrane under catarrhal disease, just as gleet discharges from the urethra are cured by the introduction of a full-sized sound or bougie.

DIABETES.—An immoderate flow of urine.—See *Diabetes*.

URINE, retention of.—Different degrees of this affection have received different appellations; as *dysuria*, when the urine is passed with pain and difficulty; *strangury*, when passed by drops only; and *ischuria*, when there is a total suppression. Desault considering all these as merely different degrees of the same disease, comprehends the whole under the two terms, viz. *complete* and *incomplete* retention. It may, however, be thus further and more explicitly divided: 1st, that species of retention arising from weakness or paralysis of the bladder; 2d, that from inflammation of the bladder or adjacent parts; 3d, that from inflammatory and spasmodic closure of the neck of the bladder or urethra; 4th and lastly, that from obstruction in the passage, as strictures, calculi, tumours, diseased prostate, &c. The second is spoken of under inflammation of the bladder. The third and fourth varieties under stricture, gravel, &c. The first, then, only remains to be described; premising, however, a few remarks upon retention generally.

Retention of urine is always an alarming disease. It is attended with acute pain in the hypogastric region, extending along the urethra to the glans penis; a tumour at the lower part of the abdomen, which gradually extends upwards, and increases to an enormous size, its pressure being felt in the rectum of males, and vagina of females, Nausea, fever, hiccup, vomiting, sweats with urinous smell, delirium, &c. are usually accompanying symptoms. All these gradually increase, when, if the patient obtains no relief, some part of the urinary apparatus gives way, and the fluid is effused.—See *Urinary Abscess* and *Extravasation*. This event will take place about the fifth or sixth day from the beginning of the retention. When the bladder and uterus are distended to their utmost, the secretion of urine is suspended. All practitioners should be aware, that when the bladder is thus distended, the urine will frequently dribble away, or even be discharged in considerable quantities, but in those cases the bladder is not empty; for the tumour of the abdomen still remains, and if a catheter be passed, urine, to the amount of several pints, will be discharged. Such cases have unhappily been mistaken for incontinence of urine. The presence of the tumour

must ever be our principal guide, and in all doubtful cases of retention, the catheter be passed.

Of the first species of retention, or that depending upon weakness or paralysis of the bladder.—In this case there is no obstruction to the flow of urine, but the bladder is incapable of performing its natural contractions to expel it. It is very common in old persons, from the bladder becoming less sensible to the stimulus of the urine. The catheter can be passed with great ease, and by making pressure upon the tumour of the abdomen, a small quantity of urine can generally be expelled. It often comes very gradually, the patient discharging a less quantity at each evacuation, until total retention take place. When the bladder is at length fully distended, the urine dribbles away continually. In old age, also, it may be caused by neglecting the calls of nature, by not completely evacuating the organ, by previous retention from other causes, by injuries of the spine, &c. As it relieves itself by the water dribbling away, sloughing of the parts rarely occurs, and as the catheter can be easily passed, puncturing the bladder is not necessary.

Treatment.—Two indications are here to be observed: first, to evacuate the bladder; and second, to restore the natural contraction of the organ. The first is fulfilled by exhibiting cantharides and other stimulating diuretics; by applying blisters to the sacrum and perinæum, and cold water to the hypogastrium. But if these are not speedily efficacious, the catheter must be introduced, and during the operation, the patient should be erect, and pressure be made upon the abdomen, to assist the expulsion of the urine. The second is accomplished by passing the catheter twice or thrice a day, or by allowing an elastic gum catheter to remain in the bladder, with the end stopped up by a small cork, withdrawing the cork and evacuating the urine every three or four hours. This is much better than to suffer a constant dribbling, as it irritates the surrounding parts, and renders the patient very uncomfortable. The instrument should be withdrawn every two or three days and cleansed, and when the bladder has so far recovered its tone as to perform its functions properly, the catheter may be laid aside. But the surgeon should always be assured that the bladder is completely emptied, or the retention may recur. Tonics, cantharides, turpentine, cold bathing, &c. may likewise be prescribed. Should the disease originate from injuries of the spine, &c. the proper treatment in such complaints must be resorted to.—Consult Hey's "Practical Obs.;" Desault's "Chir. Journ.;" and Home's "Practical Observations on Strictures."

PUNCTURING THE BLADDER.—In cases of retention of urine, in which relief cannot be obtained by medical treatment, and when the introduction of the catheter is found impracticable, the distention must

be removed, or inflammation may speedily ensue ; the urine may escape by means of ulceration or gangrene, and being effused into the cellular membrane, produce extensive sphacelation, if not death : the operation of puncturing the bladder therefore becomes necessary.

There are three methods of performing this operation ; by the rectum, above the pubes, and through the perineum. Each of these methods may have its advantages, and each has its particular advocates. The late Mr. Hey, Sir Everard Home, and Mr. Forster, being in favour of the first, Mr. Abernethy of the second, and Sir Astley Cooper generally preferring the third.

Operation by the Rectum.—The patient being seated on the edge of the bed, with his legs held up as in the operation for the stone, an assistant, with his left hand, presses on the abdomen just above the pubes, and with his right raises the scrotum. The operator kneeling on his right knee, or sitting on a low chair, passes the left index finger, previously greased, into the rectum ; and feeling behind the prostatic gland, he discovers that triangular space of the distended bladder which is situated between the vesiculæ seminales. Half bending his finger, he rests its extremity on this point, and passes along its anterior surface the curved trochar, which should be from four to five inches long : this he pushes obliquely forward into the bladder, in a direction, which, if continued, would puncture the parietes of the abdomen midway between the umbilicus and pubes, in the linea alba. The finger is now withdrawn from the rectum ; when, holding the canula between the thumb and first two fingers of the left hand, with the right the operator takes away the stilet, and the urine flowing away, is received into a basin. The canula should be retained in the bladder for a day or two, when it may be removed ; and the urine allowed to flow by the rectum, if the natural passage continues obstructed.

The principal objections to this operation are the following. The vesiculæ seminales may chance to be wounded ; the presence of a canula in the rectum often causes tenesmus, or inflammation of that gut ; a small portion of fecal matter may pass by the opening into the bladder, and form a nucleus for a future stone ; and lastly the passage of the urine by the rectum mostly produces great irritation and excoriation of the surrounding parts.

Operation above the Pubes.—The same trochar as used in the last operation is required for puncturing the bladder above the pubes. This is the method generally preferred by French surgeons, who perform it thus.

The patient being placed on the edge of his bed, reclines backwards against an assistant, with his thighs slightly bent towards the abdomen. The surgeon standing in front can observe, if the patient be thin, the

circumscribed prominence formed by the distended bladder above the pubes; he then places his left index finger on the point where he purposes introducing the trochar, which is one inch and a half above the pubes in the *linea alba*. The handle of the instrument being held in the palm of the right hand, with the index finger resting on the canula, the trochar is pushed through the integuments, directing its point backwards and downwards in the direction of the axis of the bladder, its entrance into which is made manifest by the cessation of resistance, the easy motion of the instrument, and the dripping of a little urine. The canula is now held between the thumb and first two fingers of the left hand, while the stilet is withdrawn with the right, the patient resting on either side, and reclining forwards as the urine flows away. In proportion as the bladder is emptied, its coats retract; it is therefore requisite to push forwards the canula, to prevent its slipping off its extremity. As soon as the fluid is completely drawn away, the open end of the canula is stopped by a cork; and by means of tape, passed through the rings of its outer extremity, round the pelvis, it is fixed in the bladder. In the course of seven or eight days it is withdrawn, as calculous concretions are apt to form round it, first passing through its tube an elastic gum catheter. The chief objection of this operation is the possibility of the bladder escaping from the instrument, and thus producing extravasation in the surrounding cellular membrane, as well as the necessity of constantly wearing a catheter or canula in the bladder.

Mr. Abernethy, in performing the operation, first separates the musculi pyramidales from each other, by making an incision about two inches in length through the integuments and between the muscles. By this opening, the distended bladder is readily felt, into which the trochar is introduced as before. The danger of extravasation into the surrounding cellular membrane is thus removed, by the urine passing readily off through the external wound.

Operation by the Perineum.—The patient being placed in the same position as in the operation for the stone, an assistant presses the bladder downwards from above the pubes. The operator, seated on a low chair, takes the scalpel, and holding it like a pen, commences the incision on the left side of the raphe, between the bulb and crus penis, and continues it obliquely downwards and outwards for an inch and a half. Having reached the bulb, he presses it with his left index finger to the right side, and feels forwards for the prostrate gland and distended bladder. The trochar, which should be straight and not less than three inches and a half in length, is to be pushed into the bladder, by the side and at the base of the prostrate gland. The stilet being withdrawn and the bladder emptied of its contents, the canula may be removed, and a

female catheter substituted, which should be there retained by means of tape passed through its rings round the pelvis, from before backwards, and vice versa.

This operation is the most difficult to perform of the three, and requires considerable caution, with an exact knowledge of the relative position of the parts, to enable the operator to steer clear of the surrounding danger, otherwise he may wound the vas deferens, the vesiculæ seminales, the ureter, the prostate, or the rectum; or he may pass the trochar between the rectum and bladder, and be foiled on withdrawing the stilet by finding no urine issue from the tube.

URINE, Incontinence of.—This is an inability to retain the urine, and is of three kinds: 1st, it unconsciously dribbles away from the patient; 2d, it can be retained to a certain degree, when it is suddenly and irresistibly expelled; 3d, occasionally in bed, and during sleep, as common among children. In the first species there is a weakness or paralysis of the sphincter muscle of the bladder, which allows the urine to escape as fast as it comes down from the kidneys; or it may be caused by pressure of the child's head in difficult labours; the irritation of a stone in the bladder; apoplexy, injuries and diseases of the spine; advanced stages of other diseases; and congenital malformation.

Treatment.—When the paralysis of the muscle seems entirely local, as when it has arisen from difficult labours, tonics and astringents will be proper; also, cold bathing of the back; blistering the sacrum and perinæum; exhibiting cantharides internally; electricity; stimulating liniments; air and exercise.

The second species is spasmodic, or depends upon some irritation of the bladder when it is filled to a certain degree, such as stone, piles, fistula in ano, suppressed menses, polypi, prolapsus, &c. These causes of course must be removed, before the effects can cease. If the cause cannot be removed or ascertained, we may advise antispasmodic remedies, as opium, the warm bath, the decoction of uva ursi, &c. When symptomatic of hysteria or epilepsy, or in consequence of the pressure of polypi or prolapsus of the uterus, &c. these complaints must of course receive primary attention.

The third species is very common in children, and usually goes off as they approach the adult state. They should not be allowed to drink much at night, and should be made to empty their bladders just previous to going into bed. Dashing cold water over the pubes, perinæum, &c. night and morning, is very efficacious. In obstinate cases, a grain of the powder of cantharides may be given to an adult every night, or the same quantity of opium.

HEMORRHAGE WITH THE URINE, (Hæmaturia.)—Is characterized by pain and difficulty in evacuating the urine, which is mixed with

blood. If the hemorrhage proceed from the kidneys, the pain and heat will be felt in the back; if from the bladder, the pain and heat is situated at the bottom of the abdomen. It is distinguished from the high coloured urine of different diseases, by the deposit of coagulum at the bottom of the vessel, and by its staining the linen of a red colour. Although for the most part symptomatic, it is always more or less dangerous, particularly when attended with a discharge of pus.—See *Hæmaturia*, under the head of *Hæmorrhage*.

URINARY ABSCESS, or Extravasation of Urine.—This arises from a rupture, caused by wounds, blows, abscesses, &c. in some part of the urinary apparatus, and presents itself in three forms: 1st, collected in a kind of pouch; 2d, diffused into the cellular membrane; 3d, in an abscess, caused by its having excited inflammation and suppuration. If the pelvis or infundibula of the kidneys be ruptured, the urine will be extravasated behind the peritoneum, and often form an abscess in the loins. When the lower part of the ureters, or the lower part of the bladder is concerned, the escape of urine will be into the pelvis. When at the anterior part of the bladder, especially if the viscus be much distended, the extravasation will be above the pubes, sometimes extending to the epigastric region between the peritoneum and abdominal muscles. It also follows the spermatic vessels, appears at the rings, and extends to the groins and scrotum. When the urethra is ruptured, the effusion is in the perinæum and scrotum, and even the penis and thighs. The extravasation of no fluid of the body causes such serious results as the urine; inflammation, suppuration, and mortification, are effects almost certain to follow it. Extravasation of urine may be suspected to have taken place, when a wound has been inflicted in the vicinity of the bladder, &c. followed by tumefaction, and crackling like emphysema. If any of those parts have fairly burst, or more properly, ulcerated from retention of urine, besides the above symptoms, the patient feels entire relief from his previous pain. When the extravasation is within the abdomen, and not external, we have besides those symptoms, ardent fever, thirst, hiccough, and vomiting, soon followed by death.

Treatment.—When the extravasation is from the infundibula or ureters, little remains to be done but to make an opening into the part where the urine is accumulated, in order to give it exit. But as the urine will continue to flow through the artificial opening afterwards, it is of the first importance to re-establish the natural channel. This is to be effected by removing the cause of obstruction to the flow of urine through the urethra, be it stricture or calculus. The first is effected by the use of bougies, and by keeping the bladder always empty, by having an elastic gum catheter constantly in it, so that no urine can escape

through the artificial aperture, which would always keep it in a fistulous state, and prevent it from healing. If calculus be the cause, the proper remedies for that affection must be employed, but even in this case the gum-elastic catheter must be used. The passage of the instrument may be facilitated by previously opening any abscess or collections of matter in the vicinity of the urethra, which may offer obstructions to its passage to the bladder. When the catheter cannot be got into the bladder, it may be sometimes advisable to puncture the bladder through the rectum or perinæum. Desault, however, preferred in all cases to evacuate the urine by making free punctures where it was extravasated, and giving the urine exit in this way, while he made every exertion to pass a catheter in the mean time.

In giving exit to extravasated urine, we must not spare the parts, for in almost every case sloughing will take place. It is surprising to see how speedily a cicatrization will follow in these cases. The entire testicles have been left naked, yet a cure speedily ensued, and that without assistance from art, except by passing the catheter, applying simple dressings, keeping the bowels open, and exhibiting bark, wine, and cordials, when the system seemed to require support.—Consult *Œuvres Chirurgicales de Desault par Bichat*, tome iii, p. 277—287.

URINARY FISTULA.—Desault divides urinary fistula into three kinds: 1st, *blind external fistula*; which only opens externally; 2d, *blind internal*, having one opening into some part of the urinary passages; 3d, *complete*, having both an internal opening into the urinary organs, and one or more external apertures.

Of the first.—The obstacle to the healing of this kind, after its causes have been removed, Desault says, is sometimes owing to a thinning and denudation of the parieties of the urethra, a very common circumstance when the part is situated over the scrotum, so that the latter by its weight tends to separate it from the urethra. The orifice of the fistula being higher than its other extremity, its being complicated with callosities, or caries of the bones of the pelvis, are also obstacles to its healing. This kind of fistula is known from those near the rectum, (see *Fistula in Ano*) by their taking a direction towards the urethra, which can be easily ascertained by tracing it with a probe. It is also known from the other kinds of fistula, by no urine ever passing through it, by no matter passing from the end of the urethra, and a probe cannot be made to touch a catheter in the urethra. For its cure, Desault advises compression to be made directly over the part supposed to be thinned or denuded; but if the aperture be small, or the termination of the sinus be below its mouth, it must be dilated, or laid open, as advised under the articles *Sinus* or *Fistula*. Callosities may be treated with cataplasms or gentle escharotics. Caries upon the general principles

laid down under that head, in *Bones*, diseases of; and a catheter in all cases must be worn.

Of the second species.—This most commonly occurs in the vicinity of the urethra, and rarely from the ureters or bladder. It is caused by the bursting of an abscess into the canal of the urethra; the rupture of the latter from retention of urine; a false passage; and a healing of the outer wound of lithotomy before the inner. It is known from the other species by a discharge of pus from the urethra, before or after making water; the appearance of a tumour in the urethra while passing the urine, which can be afterwards reduced by pressure, attended with a fresh discharge of urine, mixed with pus; and in attempting to carry an instrument into the bladder, it becomes entangled in it. Its cure can only be accomplished by preventing the urine from collecting in it, which is accomplished by wearing a moderately sized catheter, for if one too large be employed, it will prevent the exit of the matter from the fistula, and if one too small be used, the urine will pass down beside it, and again enter the fistula. Pressure applied externally may be useful.

Of the third species.—This kind is the most common, and may take place, either from the ureters, bladder, or urethra, and the orifices may be at various parts. Thus, those which arise from the uterus may terminate in the colon, and the urine be passed with the feces from the anus. But most commonly they terminate externally, in the lumbar or inguinal region. If they arise from the bladder, at its upper and interior part, they may terminate upon the surface of the abdomen, towards the navel, or even in the groins. When from the posterior part of the bladder, they mostly terminate in the abdomen, and produce death. When near the bottom of the bladder, they end in the rectum of males, and the vagina of females. But most frequently, the perinæum in both sexes is their seat. Those which arise from the urethra may terminate directly in the perinæum, the scrotum, penis, and now and then in the rectum. So remote is the termination of some of these sinuses, that they have been known to occur at the lower part of the thigh, whilst the external openings may be very numerous when there may be only one opening internally. The discharge of urine from the orifice of the fistula, is a positive proof of the existence of this species of fistula. When the fistula originates in the bladder, the discharge of urine is for the most part incessant, though Desault mentions a case where a man in this situation passed it, as is always the case in fistula of the urethra, only when he felt an inclination to void it. When the fistula arises from the bladder or ureters, we can do nothing but keep the bladder empty, and extract calculi or any other foreign body that may be in its track. When in the lower part of the bladder, or in the perinæum, which is generally caused by stricture, it is of the utmost importance to convey

a catheter into the bladder, where it should be constantly worn; nor should the catheter, of which the best kind is probably the elastic gum, be left off, until the sinuses have healed, and all obstructions in the passages fully removed. Fistulous openings between the bladder and vagina are attended with much difficulty. All our means must be directed to fulfil the following indications: first, to keep the urine from passing into the vagina; and second, to promote the healing of the edges of the fistula by keeping them as much as possible in contact. The first can only be accomplished by the constant presence of a catheter, which must be carefully fixed in the bladder. Desault used a machine for this purpose somewhat like a truss. The catheter should be of a full size, with a large aperture, and the end constantly left open to favour the discharge of urine. The same surgeon accomplished the second indication, by introducing a soft pessary, which had the effect of changing the opening from a round to an oval form, and brought its edges nearer into contact. Paring the edges and making sutures in the aperture have also been resorted to. When the system seems disordered, and retards the cure, we should regulate the *primæ viæ*, advise gentle exercise, change of air, cold bathing, wine, bark, &c. A description of intermittent fever is not unfrequent in such cases.

GRAVEL and STONE, Lithiasis.—(For the division of urinary calculi, see *Calculi*.)—A fit of the gravel is attended with a fixed pain and soreness in the loins, on the same side on which the stone is situated, sickness, flatulence, and vomiting, with a dark appearance of the urine like coffee-grounds, from a mixture of coagulated blood. There is also a deposit of reddish brown sand in the urine on becoming cold. If a calculus be passing down the ureter towards the bladder, acute pain is felt in the hip and thigh, extending along the crural nerve, with a retraction of the testicle on the side on which the irritating body is passing; the discharge of water is partly obstructed and bloody. A natural cure sometimes takes place from the stone ulcerating its way into the rectum, but it sometimes proves fatal.

Treatment.—If the symptoms be violent, threatening nephritis, bleeding and the antiphlogistic regimen will be demanded, and also the warm bath, purgatives, opium, and anodyne clysters, until the symptoms are removed. The patient should drink freely of linseed tea, solutions of acacia gum, or barley water. Bladders of warm water should be constantly applied to the bowels, and when the pain has been for some time fixed, and inflammation be not present, the application of a bladder of ice or snow has proved singularly efficacious. Diuretics and blisters are regarded as improper. The diet of persons subject to gravel should be light and nutritious, avoiding acids and wines abounding with tartar. When the calculus at length gets into the bladder from the ureter, the

patient experiences much relief, and, if small, it may pass on to the urethra and be discharged, or again meet with obstruction, requiring bleeding, the warm bath, &c. and oftentimes it is necessary to dilate the urethra with bougies and to extract it with a pair of forceps, if near the end of the urethra; in other cases it has been found indispensable to cut into the canal of the urethra and extract it. But if it happen that the calculus is retained in the bladder, it increases in size, produces various morbid affections, and leaves the patient no alternative but death, or the operation of lithotomy. In such cases he feels an acute burning pain at about three fourths of an inch from the end of the penis, the urine is voided very frequently and with great difficulty, sometimes by drops and sometimes in a full stream, suddenly interrupted by the falling of the stone against the upper orifice of the urethra, attended with much pain at the neck of the bladder, more especially if there be much irritation in the organ. In straining, the patient often passes urine and feces at the same time; is afflicted with tenesmus, piles, prolapsus ani; and riding and all other rough motions increase the symptoms. At length the mucous membrane of the bladder becomes ulcerated, when the urine will exhibit a whey-colour, attended with a discharge of blood and matter; this terminates in the death of the patient, as the operation is now too late. The presence of stone in the bladder may be distinguished from disease of the prostrate gland, by the difficulty experienced in the commencement of micturition in the latter case, while in the former, the pain and obstruction is felt when the bladder is nearly empty, occasioned by its contraction around the extraneous body. Nephritic complaints are most frequent in persons advanced in life, of sedentary habits, or much afflicted with gout; but the formation of stone in the bladder is liable to occur in boys. In females, a stone rarely grows to any considerable size, the less complicated structure of the parts favouring its early escape from the bladder. In warm climates the relaxed state of the urinary organs allows of the ready discharge of stone or sand from both sexes.

Treatment of Stone in the Bladder.—When the symptoms of stone are clear and well defined, and when, upon examination of the bladder with a sound, a calculus is distinctly felt, and the state of the patient is favourable for the operation, lithotomy should be performed.—See *Lithotomy*. But when the patient is advanced in life, and his constitution is much debilitated, the bladder diseased, or he will not consent to the operation, we must resort to the *palliative treatment*.

As we know of no means by which stone or gravel already formed can be dissolved, our efforts must be directed to the prevention of its farther increase; and in doing this, we must be governed by the species of calculus existing, as some require acids, and others alkalies. Dr.

Wollaston informs us, that the *first kind*, or *fusible calculus*, is highly soluble in carbonic acid ; any vehicle, then, slightly acidulated with muriatic acid, is an eligible remedy : that the *second*, or *mulberry species*, is very difficult of solution, but that Fourcroy found it to be acted on by a solution of nitric acid : that the *third*, or *bone-earth kind*, is soluble in muriatic acid : and that the *fourth*, or *friable calculus*, is acted upon by weak alkaline preparations and lime-water. The last being the most frequent, has been subjected to the greatest number of lithontriptics ; the most common in use is the *solution of potass*, which is particularly recommended by Sir Astley Cooper, in his lectures ; for, independently of its lithontriptic powers, he supposes it highly efficacious in all urinary affections, in allaying the irritation of the parts. Sir Everard Home recommends the use of magnesia, which prevents the formation of uric acid in the stomach, from which the greater part of gravel is produced ; but it would seem that it must not be administered to a great extent, or there may be a disposition to produce the phosphates. The state of the urine is then to be examined, and magnesia or muriatic acid given, as either seem indicated. The soda and potass waters are also useful. —Peruse Drs. Wollaston's and Pearson's account of the varieties of Urinary Calculi, in *Med. and Chirurg. Review*, vol. i. p. 481, and vol. v. p. 306 ; also, Sir E. Home, in *Phil. Trans.* for 1810.

URETHRA, *Strictures of*.—See *Venereal Disease*.

URTICARIA, (from *urtica*, a nettle.)—The nettle rash.—See *Cutaneous Diseases*.

UTERUS, or WOMB, *Diseases of the*.—This organ, which may be regarded as one of the great centres of the female system, is subject to many disorders, both of a structural and functional character. Those appertaining to its functions may be the first considered, commencing with the irregularities observed in the menstrual discharge.

CHLOROSIS, the disease known by the designation *green sickness*. This singular affection is chiefly incidental to female youth ; it occurs sometimes, however, in the age of childhood, and not unfrequently in married women.

Symptoms.—Chlorosis steals upon the patient very insidiously. It has pretty distinctly, three stages, the incipient, the confirmed, and the inveterate.

The first stage or period of chlorosis is usually little observed by the patient or friends. There is slight paleness, or a little fading of a wonted florid complexion, and the patient is only a little more languid and listless than usual ; the ordinary amusements or occupations, whether mental or bodily, being accompanied by fatigue, the nights restless, the mornings heavy. With these changes, however, there is invariably a confined state of the bowels, a deranged condition of the stomach, a

tainted breath, a white and furred tongue, and a morbid appetite ; and there is recurrent headache, pain of the left side, palpitation, &c. The catamenia are supposed to flow as usual, but an attentive inquiry discovers, that, with the complexion, the uterine discharges also lose their colour.

In the second, or confirmed stage, every morbid appearance, every symptom is aggravated ; the countenance, the lips, the tongue, the gums, the internal parts of the cheek, the conjunctiva, the general surface, and especially the fingers and finger-nails, become absolutely exsanguineous, sometimes with a pearly, sometimes with an icterode hue ; the eyelids are sometimes slightly œdematous, especially in the morning ; the tongue, besides being pale and exsanguineous, is œdematous, and impressed with the teeth ; sometimes slightly loaded, sometimes morbidly clear, and glossy in various parts ; the teeth are apt to decay ; the skin becomes gradually rather dry ; a singular change takes place eventually in the finger-nails, which become brittle, and easily split or break off, so that frequently a pin can scarcely be taken out of the dress. An equally remarkable change is also occasionally observed in the hair, which becomes dry and harsh, frequently splitting, and not remaining "in curl;" the ancles become tumid, and more and more œdematous. With the accession and progress of these symptoms, the catamenia become by degrees more scanty and pale, and then disappear ; the bowels continue constipated, with or without alternations of diarrhœa ; the stomach is oppressed after eating ; there are various forms of pica, or morbid appetite, as for pickles, magnesia, cinders, &c.

With this state of things, there is frequently one predominant symptom, which absorbs the attention of the patient and friends, and sometimes even deludes the medical practitioner. This symptom is sometimes a violent recurrent headache ; sometimes pain of the side, especially the left side, just under the mamma ; sometimes palpitation of the heart ; sometimes cough ; in other cases these symptoms vary and interchange, and there is frequently every variety of affection comprised in hysteria. This predominant symptom frequently leads to the idea of *arachnitis*, of *pleuritis*, of *diseases of the heart*, or of incipient *phthisis*.

Chlorosis is frequently complicated with hæmatemesis and melæna, and with epistaxis. In the latter affection, the blood occasionally scarcely tinges the linen on which it drops.

The second stage gradually passes into the third, in which some degree of emaciation is added, the œdema assumes a more or less aggravated form of anasarca, and a more proportionate degree of danger now attends the complaint.

Causes.—The most usually exciting causes of chlorosis are, delicate and sedentary habits ; the predisposing causes are those peculiarities

of the constitution involved in the lymphatic temperament. In some manufacturing districts, chlorosis and other affections strictly allied to it, may, from the habits of the people, be justly said to be endemic. The baneful influence of the want of air and exercise, and of a sedentary occupation, are speedily visible in the pallid and icterode states of the complexion, and in the listless manner of the youthful sufferers. The bowels first become confined and loaded; the appetite repels simple food; the breath is tainted; the gums swollen and pale, and the teeth decayed. This state is gradually followed by the other appearances and affections observed in chlorosis.

Servants, and especially cooks, are particularly liable to chlorosis; but the delicate and inert habits of the rich not less frequently lead to this affection.

Treatment.—The remedies for chlorosis are principally, mild, but efficient aperient medicines and chalybeates. It is important, in the first place, to remove any load from the bowels by an ample dose of medicine, such as an ounce of *oleum ricini*. Afterwards, pills, consisting of two grains of the Barbadoes aloes, and the same quantity of the sulphate of iron, taken daily, are most efficacious, and, indeed, almost specific.

It is sometimes useful to interpose a draught of the *tinctura* and *infusum rhei*, with manna; at other times, senna and the Epsom salt are required to move the bowels sufficiently. In other cases, the warm water enema is necessary to ensure the due effect of the aperient medicines.

Other forms of the chalybeates are also occasionally advantageous, and especially the ammoniuret in the form of tincture, and the carbonate of iron.

A mild, light, nutritious diet must be enjoined with these medicines; and a system of moderate exercises, in the free open air, especially riding on horseback, must be enjoined, carefully avoiding fatigue. The general surface, but especially the feet, must be kept warm.

It is often necessary to employ some distinct remedy for the pain of the head or of the side, and a blister is the best. The palpitation also occasionally demands a remedy, and the *tinctura hyoscyami* relieves this symptom. Leeches, and, *a fortiori*, general blood-letting, are highly injurious, perpetuating the constitutional disease.

The occurrence of chlorosis in the delicate of the male sex has been noticed by Dr. Hamilton, Sir Gilbert Blane, and others, and will become familiar to all who study this affection with attention.

In families in which chlorosis prevails amongst the females, a similar affection seems to attack the males. In some such instances, chlorosis has been seen in its most marked character in the male sex. It is

removed by the aloetic chalybeate.—See in the Cyclopædia of Practical Medicine, Dr. Marshall Hall on Chlorosis.

AMENORRHŒA has been usually divided into retention and suppression of the menses.

Retention of the Menses.—The non-appearance of the menstrual discharge at the usual age, does not, in itself, constitute a disease. The condition of the bodily development must chiefly be taken into consideration, for the age at which the ovarian functions are first manifested varies exceedingly. Instances of very precocious puberty are numerous ; neither is it at all uncommon to meet with cases where the menstrual discharge does not occur till a very late period of life ; but if the general health be not affected, medical interference will be rarely required. When, at the usual age of puberty, a decided change in the system is observed, and a struggle is evidently taking place to bring about the sexual functions, although followed by no actual development, we may conclude that the defect is only in degree, and that, by proper assistance, nature will accomplish her object.

There are now peculiar symptoms set up ; headache, with a sensation of fulness and throbbing, a flushed countenance, heaviness, pains in the back and limbs, and a full pulse, generally remarkably slow, though, in some cases, accelerated. There appears to be either a torpor of the uterine vessels, which ought to secrete the menstrual discharge, or (as some have supposed) a spasm of their extremities. The causes of this condition are generally to be found in the previous habits of the patient ; for it is most frequently met with in those who have led sedentary and indolent lives, who have indulged in luxurious and gross diet, and been accustomed to hot rooms, soft beds, and too much sleep. The remedies are usually successful, and rapidly so. In the first place, the overloaded circulation is to be relieved by a brisk purgative, abstemious diet, and the abstraction of blood ; if the symptoms of plethora be strongly marked, bleeding from the arm in considerable quantity may be required ; but in general, the application of leeches to the labia, pubes, groins, or os uteri, or cupping on the loins, will be sufficient.

The purgatives most efficacious in such cases, are those which not only unload the vessels, but stimulate the rectum ; aloes, colocynth, or senna, and the neutral salts, are preferable ; and in addition to these plans, pediluvia, either of simple hot water, or made stimulating by the addition of mustard-flour, may be used for half an hour, night and morning. This treatment should be persevered in till the symptoms of plethora disappear, when it may be suspended, and merely a free action of the bowels kept up by a daily use of an aloetic purgative, either till the menstrual discharge comes on, or till, at the end of about a month,

the congestive symptoms are again perceived, to be again similarly treated. Exercise, especially on horseback, will materially assist in promoting the desired effect, and, of course, all the old habits of self-indulgence are to be entirely broken through.

Suppression of the menses may take place at any time after menstruation has been once fairly established, and may be either *acute* or *chronic*; in the latter case, it is most commonly the effect of disorder of the general health, although by females it is apt to be considered as the cause. Acute suppression generally arises from some cause acting immediately previous to, or during the menstrual period; such as an attack of fever, exposure to cold or wet, anxiety of mind, fright, or any agitation of a depressing character, a meal of improper or indigestible food, &c.

In habits at all plethoric, abstraction of blood is desirable; an emetic, followed by an active saline purgative, may be also given; a warm bath, hot fomentations to the abdomen, and diaphoretic medicines, combined with opium, will then be found of the greatest service; and if, after having reduced the immediate symptoms, the menstruation be still suspended, it may be considered as a case of chronic suppression.

Chronic suppression of the menses is either the consequence of a previously acute attack, or is the result of impaired health. In the latter case it often comes on slowly, the menstrual discharge either becoming gradually more scanty, or the intervals between the periods more protracted, till at last there is a total suppression. In either of these cases, there is much the same train of symptoms as described in the history of *retention* of the menses; but there is almost always much more headache and pain in the loins. The causes are also similar, and the treatment varies only according to the peculiar derangement of health which produces or accompanies the suppression.

MENORRHAGIA is the term applied to profuse menstruation, and also to actual hæmorrhage from the uterus. Menstruation may be considered as profuse, either when the quantity is greater than natural, or the intervals of its occurrence shorter: the quantity discharged varies in different women, some submitting to what would be an inordinate flow in another. The accompanying symptoms will, however, in every case denote the disordered function.

Menorrhagia may arise from a number of exciting causes, either in the unimpregnated or gravid state of the uterus; such as cancerous or other malignant ulcers about its cervix; the local condition of the organ under opposite states of the uterine vessels, sometimes occurring from increased action, independent of any general febrile disturbance, and at others, connected with a morbid degree of relaxation in the same vessels. The discharge of blood from the uterus in a state of pregnancy,

is one of the most interesting considerations in obstetric science, and is well described by many of the writers in that department of medical investigation.

Functional menorrhagia also occurs in two different conditions of the system: generally dependent upon increased action, when it is termed the active or common menorrhagia, but sometimes observed in connection with general debility, when it may be viewed as chronic.

The active hæmorrhage is attended with fever; ushered in by rigors, headache, severe bearing-down pains of the loins, followed by a hot skin, thirst, restlessness, and a frequent, hard, or full pulse.

The disease continuing, a second set of symptoms will sometimes set in: œdematous feet, cold extremities, paleness of the skin, a weak pulse, extreme lassitude, palpitation of the heart, and a sense of oppression and sinking at the pit of the stomach. The passive or chronic menorrhagia is a much rarer disease, and is nearly confined to the lower conditions of life, in consequence of exposure to cold and fatigue, bad air and an impoverished diet; the exciting causes of the active form, on the contrary, are whatever will increase plethora, and it accordingly attacks those in the upper ranks of life, who are accustomed to full living, late hours, and a want of sufficient exercise. The common causes of both varieties, are exposure to cold, excessive venery, costiveness, and consequent straining at stool.

Menorrhagia is rare among young unmarried women, and seldom originates in married women before thirty years of age; but when it is once experienced, its tendency is to increase until that period of life when the menstrual discharge ceases altogether. In active menorrhagia, the *treatment* must be commenced by depleting measures. The lancet is often necessary; and when much pain exists in the loins, the cupping-glasses may be applied, and ten or twelve ounces of blood withdrawn. Saline aperients should be administered, so as to ensure the regular action of the bowels, and a light spare diet, and confinement in a horizontal position, be insisted upon. Napkins dipped in ice-cold water may be applied to the lower part of the abdomen, and cold injections, holding alum or the sulphate of zinc in solution, be thrown up the vagina, three or four times a day. Should the discharge be so profuse as to create alarm, the patient must be freely exposed to air, and lumps of ice introduced within the vagina.

When all marks of febrile action have subsided, the mineral acids, given in addition to the infusion of roses, will be serviceable, both as astringents and tonics. In passive menorrhagia, opium may frequently be advantageously given in addition to the tonic medicines advised in the active form of the disease; and when the constitution is much affected, the decoction of bark and acids should be administered.

LEUCORRHŒA, *fluor albus*, (or as vulgarly called, *the whites*) consists of an increased secretion of mucus from the vagina, and is a frequent, troublesome, and obstinate complaint. Its pathology is frequently associated with that of menorrhagia; and as it usually accompanies profuse menstruation, so is it one of the most constant attendants upon the natural decline of that discharge. It is occasionally dependent upon, and has the distinctive characters of plethora; and in rarer instances, is connected with general weakness. Local irritation may likewise prove the exciting cause.

The *treatment* must of course vary with the character of the symptoms; if plethora be present, laxatives, antimonial diaphoretics, and cupping-glasses to the loins, should be employed; but when the system is debilitated, the cold bath, tonics, and astringent injections, are indicated. It may be occasionally unwise to check this discharge, especially when it has prevailed for a considerable period; at all events, without guarding against the apprehended consequences. In some systems, the discharge continues, notwithstanding the most active measures employed in its restraint; and while in some individuals it rapidly induces a fatal debility, in others it continues for a lengthened period, and without any injury to the general health.

DYSMENORRHŒA, or *painful menstruation*, is a distressing, though not dangerous condition, to which many young females are subject. The pain in the loins, which is principally complained of, is sometimes exceedingly acute, lasting for two or three days. The menstrual discharge is usually scanty, and containing small portions of coagulable lymph. In the worst cases, the system is similarly affected as in amenorrhœa, and will need the same measures for its relief. In ordinary instances, the occasional use of aperients, and regular exercise in the intervals, will prove of the greatest service, in lessening the violence of the subsequent attack. The pain may likewise be sometimes abated by a small blood-letting, the use of the hip bath, sitting over the steam of warm water, and other relaxing measures. The volatile tincture of guaiacum has been also strongly recommended, together with the Dover's powder, either alone, or combined with a small quantity of the extract of conium.

The structural diseases of the uterus may be classed in the following order: *Inversion*, *Prolapsus*, and *Retroversion*.

1st. *Inversion of the Uterus*.—This disease may be *complete*, or *incomplete*. In the latter, the uterus inverts itself, and its fundus descends through its own neck into the vagina, where it can be distinctly felt in the form of a spherical tumour, around the upper part of which is felt a sort of collar, encircling it, which is nothing more than the mouth of the uterus. In the *complete*, the entire womb is turned inside out, as

well as the vagina, and the whole protrudes externally, hanging down between the thighs. A probe cannot be passed beside the tumour into the vagina. Both cases are attended with a sense of weight and dragging down in the hypogastric region, and the hard round substance of the uterus cannot be discovered in the abdomen; tenesmus, pain, hemorrhage, and very soon inflammation, which, if not relieved, will sometimes terminate in mortification and death. Flooding is always to be apprehended after recent inversion, and may proceed to a fatal extent. The usual causes of inversion are, a neglect to secure the contraction of the womb, before the expulsion of the placenta, any violent attempts to hasten its delivery by pulling upon the cord, and also the dragging down of a polypus attached to the fundus of the uterus.

The *treatment* of this accident must be immediate, or but slight if any service can be rendered. Should the uterus be inverted before the placenta be expelled, the prudent course will be, to return it without detaching the placenta from the womb, as a contrary mode would immediately occasion an alarming hemorrhage. In some cases, however, the attachment may be so slight as to justify the division; but in general, the uterus, when returned to its proper situation, may be left to its natural office in discharging the placenta. Provided the practitioner immediately replace the inverted uterus, the consequences are in themselves but trifling; but should a few hours only have elapsed before the attempt be made, the difficulty is not only increased, but frequently rendered insurmountable. In an early attempt to return the inversion, it is frequently necessary to evacuate the bladder with the catheter, to abstract a small quantity of blood, apply an emollient poultice, and in some cases to administer opium. After the reduction, which should be effected by carrying the womb upward towards the promontory of the sacrum, and then in advancing it in the axis of the navel, the hand should not be removed until the uterus has regained its contractile power. In relaxed or very corpulent habits, a pessary is sometimes necessary to retain the uterus in its natural position after inversion. When the womb has been inverted for a period too long to afford the possibility of its return, and especially when the inversion is complete, so as to form a perpetual inconvenienc or source of suffering, the whole organ may be removed by ligature. This operation has been successfully performed in a number of instances.

2d. *Prolapsus, Procidentia, or Falling of the Uterus. Prolapsus Uteri.*—This is a descent of the mouth of the uterus, and is also distinguished into the *complete* and *incomplete*. In the *incomplete*, the uterus falls into the vagina, causing an uneasy dragging sensation in the pelvis, impediments to the discharge of urine and feces, and a painful twitching of the parts, attended with leucorrhœa. In the *complete*, the os uteri

projects through the vulva or external parts of generation, often carrying the vagina with it, so that a probe cannot be passed in beside the tumour. The dragging sensation is now increased, and the bladder is drawn backward in the situation of the uterus to such a degree, that it, together with the *mcatus urinarius*, is brought into a horizontal line: this must be remembered when passing the catheter. The rectum is swelled and inflamed by its displacement and obstruction. The pressure, friction of the clothes, &c. cause ulcerations in the recent prolapsus, but in time the parts adapt themselves to circumstances, and the fine delicate texture of the vagina resembles in texture and insensibility the common integument. In this condition the case may continue a long time, the parts protruding themselves while the patient is erect, and receding as she adopts the recumbent posture. The irritation, discharge, and pain, cause dyspeptic symptoms, costiveness, &c. The pressure of the *os tincæ* will distinguish this disease from all others; the menses likewise are found to issue, and into the same aperture a probe may be passed. The *causes* are those which weaken or relax the parts retaining the uterus in its natural position, as frequent labours, or abortions, getting up too soon after delivery, sedentary occupation, leucorrhœa, and excess in venery. Also whatever tends to force down the uterus, as lifting, or other violent exercise. A prolapsus is often cured by pregnancy, and is almost always more or less relieved thereby, although there are a few cases upon record where the impregnated uterus was prolapsed during uterogestation, and at the period of labour.

Treatment.—The indications of cure are, to reduce the parts by steadily pressing them upwards, and to retain them there by means of a pessary, which is easily accomplished in the *incomplete* prolapsus. But in the *complete*, particularly if it be of long standing, we shall often find it necessary to precede the effort at reduction, by bleeding, reducing the irritation by cold washes, &c.; also, by emptying the bladder and rectum. The attempt should be made, if much difficulty be anticipated, before the patient rises in the morning. Having reduced the part, a radical cure may be attempted by confining the patient to a horizontal posture; by using astringent injections; by keeping in the vagina a cylindrical piece of sponge, wet with some astringent lotion, as solution of alum, decoction of oak bark or logwood, confining it with a T bandage. All straining at stool, or when passing the urine, must be avoided; the bowels should be kept open, and cold injections thrown into the rectum. If these remedies do not succeed after a fair trial, the pessary may be resorted to.

3d. *Retroversion and Antiversion of the Uterus.*—In retroversion, the fundus of the uterus is thrown back upon the rectum. It chiefly occurs about the third or fourth month of pregnancy. An over distention of

the bladder throws the uterus backward, which often falls down between the vagina and rectum ; the stools and urine are suddenly suppressed, and on passing the finger into the rectum, a tumour is perceptible. The os uteri is drawn upwards, dragging with it the urethra, so that its surface is higher than the arch of the pubes. If the bladder be much distended, the os uteri cannot be felt.

Treatment.—No time should be lost in replacing the organ in its natural situation, which event will be greatly facilitated by previously evacuating the bladder and rectum. The patient is then to be placed on her hands and knees, and two fingers passed into the rectum, and making pressure against the tumour upward and forward towards the navel, while two fingers of the other hand are employed in the vagina to draw downward and backward the os uteri. The projection of the sacrum is the greatest obstacle to the reduction. From the displacement of the bladder, the catheter will often pass best by introducing it with its convexity towards the pubes; but in some cases it cannot be introduced at all, when relief has been obtained by puncturing the bladder above the pubes.

Antiversion.—In this instance the fundus uteri is thrown forward over the fundus of the bladder, while the os uteri is thrown back against the rectum. It excites a constant inclination to evacuate the urine ; the patient cannot bear pressure upon the abdomen, and the uterus falls forward as she stands erect, and backward when she lies down. This case is easily relieved by placing the patient on her back, and making pressure with the hand above the pubes, at the same time that two fingers of the other hand are carried into the vagina to urge forward the os uteri. The recurrence of the accident may be prevented by wearing a pessary, keeping the patient on her back, and applying a compress and bandage just above the pubes.—Consult Sabatier *Médecine Opérative*, tome ii. See also Dr. Dewees' *Strictures on Dr. Merriman's Opinions*, in *Philadelphia Jour. Med. and Phy. Sciences*, Nos. 2 and 3 ; the works of Denman, Burns, and others.

UVA URSI, (*Bear's Whortleberry*.)—The *arbutus uvæ ursi*, a tree of the class decandria, and order monogynia, the leaves of which are tonic and astringent, and are occasionally employed in chronic diarrhœa and dysentery, leucorrhœa and diabetes. It has been much recommended in calculous and nephritic disorders, as tending to allay the pain and irritability of the bladder. Dose of the powder of the leaves, gr: xv to ʒss.

UVULA, (the diminutive of *uva*, a grape.)—The small conical fleshy substance, hanging in the middle of the *velum pendulum palati*. It is occasionally subject to relaxation from cold, becoming either longer and more bulky than natural, or simply elongated, but in either case giving

riso to a disagreeable irritation at the root of the tongue, and causing frequent attempts to cough and vomit. When the relaxation does not yield to astringent gargles, it is necessary to amputate a portion of the uvula with a pair of scissors.

VACCINATION, (*Variola Vaccina.*)—The insertion of a peculiar virus into the system to produce the cow pox, which see under that head, in the article on *Fevers*, eruptive.

VAGINA, *Imperforate*.—Imperviousness of this part may be situated between the labia, the nymphæ, in the hymen, the vagina, and the os tincæ. But the imperforated state of the hymen is the most frequent, which in some infants is found to extend over the orifice of the urethra, and obstructing the flow of urine. An immediate incision with a small scalpel in such cases is required to give exit to that fluid, and the tenseness of the membrane from the pressure of the urine behind, renders the operation easy to be performed. When the hymen is imperforate, and is situated posterior to the meatus, no inconvenience is perceived until menstruation begins; this evacuation then being obstructed, it accumulates in, and distends the uterus and fallopian tubes, causing pain, swelling, giddiness, emaciation, &c. and is liable to be mistaken for chlorosis or pregnancy. These symptoms are aggravated at every monthly period, till at length the menses find some other outlet, as the lungs, nose, kidneys, &c. from whence it is sometimes impossible to restore it to its natural channel, even after the original obstacle is removed. It has happened in a few rare cases, that the fluid has escaped into the abdomen and caused death. This case is easily ascertained by ocular inspection, and the operation for its relief is equally simple, being nothing more than a conical or longitudinal incision through the membrane, in order to give exit to the fluid. If it do not easily flow, warm water should be injected, and in this way many pounds of dark-coloured blood have been evacuated. Here, as in all the operations for these kinds of obstructions, the parts must be kept asunder with a dossil of lint, for three or four days, to prevent a reunion. Sometimes the vagina is closed by a concretion of the labia nymphæ, or mouth of the vagina, which may be either congenital, or from inattention in keeping these parts asunder when in an excoriated state. No opening is discernable except a small one through which the urine flows, but a white raphe, or line from that opening downwards, is visible. These cases are to be relieved by introducing a director, and slitting the part open with a bistoury in the direction of the raphe. If a director cannot be introduced, the raphe must be carefully divided with a scalpel. Many other cases occur; thus, the orifice of the vagina may be closed with a fleshy mass or tumour, which has been relieved by making an incision through and cutting it away. A membrane

may also extend across the vagina at a greater or less distance from its mouth; adhesions form between the parietes of the vagina, in consequence of hard labours, inflammation, &c.: these will be attended with obstructions of the menses and the other symptoms above related. Relief may be obtained by making an incision through these obstructions, with a knife or blunt-pointed scissors, and the operation is facilitated by the presence of the menstrual flux. Some of these preternatural membranes and adhesions are only partial, so that copulation and a regular flow of the menses may occur, yet during labour it may be found necessary to divide them to prevent laceration. The *os tincæ* may be also imperforate, either originally or from disease, and cause obstruction of the menses and all the foregoing symptoms. If it be obstructed with a thin membrane only, the pressure of the menses will generally rupture it; and when this is insufficient, it will be proper to puncture it with a small trochar. Reclosure is to be prevented by introducing a bougie or elastic gum catheter. It should also be known, that the hymen, when not imperforate, or rather when it is perforated with several small apertures only, known to anatomists by the term *cribriform*, or *sieve-like hymen*, is so strong, that a woman may be impregnated without its being ruptured. In such cases it has been found necessary during labour to divide it by a conical incision.—See Sabatier Med. Oper. tome i; S. Cooper's Surg. Dict. &c.

VAGINA, Prolapsus, or Inversion of.—This case very strongly resembles a prolapsus of the uterus; the principal differences obviously are, “that the tumour formed by the descent of the uterus is very firm, and terminates in a narrow end, on which may be observed the transverse opening on the *os tincæ*, while that produced by the descent of the vagina is soft, thicker below than elsewhere, and ends in an irregular aperture.” The substance displaced does not consist of the entire vagina, but merely its inner membrane.

Treatment.—A pessary may be introduced, and a T bandage worn, while the horizontal posture is assumed. Rest, when aided by these means, is in fact the most effectual cure. The tumour formed will sometimes slough, when keeping the parts clean, and attending to the constitutional symptoms, form the remedial measures; and in common cases a natural cure quickly follows.

VALERIAN, (Valeriana.)—A perennial plant, of the class triandria, and order monogynia, the root of which is medicinally employed as an antispasmodic, tonic, and emmenagogue. It has long been administered in cases of hysteria, epilepsy, hemicrania, and chlorosis, and sometimes with decided benefit. ℞j to ℞i of the powder of the root may be given twice or thrice a day, increasing the dose as the stomach can bear it. The officinal preparations are, however, although not so powerful, in

more general use. The extract, (*extractum valerianæ*) an expressed decoction evaporated, is the mildest preparation, as much of its essential oil is dissipated; dose, gr: x to $\mathfrak{z}\text{i}$, in pills, principally given in hysteria. The infusion of valerian, (*infusum valerianæ*) $\mathfrak{z}\text{iss}$ to $\mathfrak{z}\text{ij}$, twice or thrice a day. The tincture, (*tinctura valerianæ*) stimulant and strongly antispasmodic, useful in spasmodic affections, $\mathfrak{z}\text{ss}$ to $\mathfrak{z}\text{ij}$. The ammoniated tincture, (*tinctura valerianæ ammoniata*) is rendered still more available as an antispasmodic by the addition of ammonia.

VENEREAL DISEASE, (*Syphilis*.)—The observations of Mr. Samuel Cooper, in his “First Lines of Surgery,” are so correct as to the character of this disease, and his directions fortified by the opinion of the most eminent European practitioners so full and comprehensive, that we have embodied in the present work nearly the whole of his valuable information upon the subject.

“The venereal disease,” he observes, “is generally believed to arise from a specific, morbid poison, which, when applied to the human body, produces effects, either on the part to which it is immediately applied, or on various parts of the system, in consequence of absorption.

The effects produced on the part to which the poison is directly applied, are called *primary symptoms*; while those happening in consequence of the virus being absorbed in the circulation, are termed *secondary*.

When the primary symptom is a sore, it is denominated a *chancre*; and when the absorbed matter, in its course towards the circulation, makes the absorbent vessels or glands inflame and suppurate, the latter complaint is named a *bubo*, which likewise generally ranks as a primary symptom, because the virus which produces it is only on its way into the circulation, and the swelling is not in reality an effect of the poison after its arrival in the sanguiferous system.

According to several authors, amongst whom is Mr. Hunter, the primary symptom may also be a discharge of *venereal matter* from the urethra, or from the surface of the nymphæ, clitoris, meatus urinarius, &c. in women, well known by the name of a *clap* or *gonorrhœa*.

The earliest or first order of *secondary symptoms* generally consists of ulcers in the throat or skin, or of spots on the surface of the body. The second order comprehends either swellings of the bones, periosteum, and tendons, called *nodes*, or else mere pains in these parts.

In the opinion of Mr. Hunter, gonorrhœa and chancre arise from the application of the same specific virus. The difference of the effect he explains by the application being made, in the first instance, to a *secreting surface*; and, in the second, to one that does not secrete;

but this belief in the identity of the infections, which produce these very different diseases, may now be said to be rapidly declining.

After the venereal virus has been conveyed into the circulation by the absorbents, Mr. Hunter inferred that it did not long continue there, but was soon ejected, together with some of the excretions. Previous to its expulsion, however, it contaminates certain parts of the body, and gives them a *disposition* to the disease. Mr. Hunter's chief reason for supposing that the virus does not remain long in the circulation is, that when the parts first affected with secondary symptoms have been cured, before the disease is eradicated from such parts as are generally affected with secondary symptoms at a later period, the first parts which have been cured never again become diseased *from the same stock of infection*, as in all probability they would do if the virus continued mixed with the circulating fluids.

But, though Mr. Hunter believed that the *disposition* was formed nearly about the same time in such parts as happen to be contaminated; yet his doctrines teach us, that they fall into a state of palpable disease, or (to use his own language) they afterwards take on the diseased *action* at different periods, some showing much sooner than others the local effects of the disease. This remarkable circumstance in the history of syphilis Mr. Hunter ascribes, partly to the different susceptibility of action in different organs, and partly to the effect of external circumstances, having no relation to the poison or the constitution.

Of these external circumstances, one of the principal is cold, which accelerates the local effects caused by the passage of the virus through the system. The change from *disposition* to *action* appears also to be hastened by proximity to the surface of the body, and by any great disturbance in the habit from scrofula, gout, rheumatism, and, more especially, fever.

It was likewise one of Mr. Hunter's tenets, that the change from disposition to action never happened while the constitution was under mercurial irritation.

He inculcates, that when the disposition has taken place, the action may be suspended by mercury; but the disposition will remain, and the action show itself at some period after the mercurial irritation has ceased. But, although mercury cannot destroy a disposition already formed, it may hinder the disposition from being formed at all, or, in other words, prevent contamination. When the action has begun in one order of parts, it may be cured, and will not return in the part, or that order of parts, from the same stock of infection. But the diseased action may take place in another order of parts, if that other order has been contaminated; and, in this order, it must be treated as in the former. When the diseased action has taken place, and been cured in

the part first affected, in the throat and fauces, the skin and the bones, or periosteum, the patient may be regarded as free from the disease.

The usual time of the skin, or throat, taking on the diseased action, is, on a medium, six weeks after the subsidence of the mercurial irritation, by which the first symptoms were cured, and in the bones, about twice that time ; but these intervals between the primary and secondary symptoms are subject to much variety.

Whatever doubtful appearances may arise in the skin, throat, or bones, during the mercurial irritation under which chancres or buboes are giving way, they are not regarded by Mr. Hunter as venereal ; and even if such secondary symptoms occur, after the mercurial irritation has ceased, but earlier than the usual periods above specified, they are not to be considered as unequivocally syphilitic. If no secondary symptoms appear in three months after the mercurial irritation has ceased, and the constitution has not in the mean time been occupied by any other disease, we have for the most part no reason to apprehend any complaints in the skin or throat from that stock of infection.

That there are some glaring inconsistencies in Mr. Hunter's precepts with regard to the venereal disease, no man of candour will deny. One of the most striking incongruities is the theory, that mercury cannot cure the disposition, and yet, by way of security, the recommendation of its continuance for a certain time, after all palpable symptoms have been cured.

By reference to the writings of Mr. Pearson, it appears that guaiacum and sarsaparilla are capable of alleviating symptoms derived from the venereal virus, though not of eradicating the disease. Also his statement, that even bark would sometimes have a salutary effect on incipient buboes, ulcers of the tonsils, and gangrenous sores, from a venereal cause, was particularly remarked, as well as his description of the almost complete reduction of venereal buboes by this medicine.

Since the period when the foregoing reflections were made, the great question, whether syphilis is curable without mercury, has been completely settled, chiefly by the meritorious labours of the surgeons of the British army.

A great many practitioners, both in the sixteenth and seventeenth centuries, combated the venereal disease with considerable success, without the aid of mercury. Fallopius, Palmarius, Abercromby, and several others, who might be cited, furnish proofs of the fact ; their principal remedies having been guaiacum, sarsaparilla, and antimonials, with occasional venesection and purging.

Had it been the invariable character of the venereal disease to become regularly worse without mercury, no patients could ever have recovered before the use of that mineral in the treatment of the distemper had

been introduced into Europe ; a supposition contradicted by abundant evidence.

An opinion is sometimes entertained, that the venereal disease is modified by climate, and that it can be cured in warm countries by means which would completely fail in colder parts of the world. The facility of curing the venereal disease in the West Indies, the Brazils, &c. with sarsaparilla, guaiacum, and other vegetable productions, is a fact which has long been familiarly known. Without the acknowledgment of such efficacy in these remedies, or in the powers of the constitution, the advocates for the American origin of syphilis, and the believers in the incurability of the disorder without mercury, would be totally unable to explain how it happened that the population of the new continent was not annihilated by syphilitic ravages long before the visit of Columbus. In Portugal, the use of mercury in the treatment of the venereal disease is nearly abandoned ; the disorder proving there very mild, and being curable for the most part by mere topical treatment, or wearing itself out without the use of any adequate mercurial remedy.

Nor is it only in the warmer parts of Europe and America that syphilis is readily subdued without mercury ; the same truth is proclaimed in Asia, as may be learned by referring to Dr. Scott's observations on the anti-venereal virtues of the nitro-muriatic acid, and of baths impregnated with it.

The curability of every kind of ulcer, by common means, is well known at Paris, where Cullerier annually demonstrates this fact to his pupils ; but, after the ulcers are healed, each patient is put upon a mercurial course, in order to prevent secondary symptoms.

But no facts have had greater weight than those of Mr. Rose, in regulating the judgment of modern surgeons, on the question of the curability of syphilis without mercury. He had tried the non-mercurial treatment in the hospital of the Coldstream regiment of guards, for a year and three quarters, and had certainly succeeded without mercury, in curing all the ulcers on the parts of generation which he had met with in that period, with the constitutional symptoms to which they gave rise. The battalion of the Coldstream, in which they occurred, consisted of upwards of a thousand men, who, being stationed in this metropolis, and often associating with the lower orders of prostitutes, were particularly exposed to the risk of infection, and might have been expected, in a much shorter period, to furnish many examples of the venereal disease.

In the treatment, all ideas of specific remedies were entirely laid aside. The patients were usually confined to their beds, and such local applications employed as the appearances of the sores seemed to indicate. Aperient medicines, antimony, bark, sulphuric acid, and

occasionally sarsaparilla, were administered. The observations of Mr. Guthrie, Professor Thomson, Dr. Hennen, and indeed the united reports of all our army surgeons, from different parts of these kingdoms, and France, also fully proved the curability of the primary and secondary effects of syphilis without mercury, and generally speaking, of all sores, whether truly syphilitic, or only of a resembling nature, provided sufficient time be granted, the constitution be good, the patient regular in his mode of living, and attention be paid to cleanliness and simple dressings, and to keep the patient in a state of quietude.

From the preceding facts and view of the subject, many curious and important considerations naturally arise. In the first place, they oblige us to renounce all the most important doctrines advanced by Mr. Hunter, and adopted in almost every school, in relation to the history, progress, and cure of the venereal disease. They compel us to believe, either that true syphilis has totally changed, in the course of the last twenty or thirty years, or that most of the Hunterian theories about it were always false, and founded upon mistaken notions.

Of true chancres.—Chancres signify sores which result from the application of true syphilitic matter to a part of the body; and, consequently, they are generally situated in the genitals. A true chancre, according to Mr. Hunter, is somewhat of a circular form, excavated, without granulations, with matter adhering to the surface, and with a thickened edge and base. This hardness, or thickening, is very circumscribed; not diffusing itself gradually and imperceptibly into the surrounding parts, but terminating rather abruptly. When the disease occurs on the prepuce, or frænum, the effects of the inflammation are more extensive. When the sore is on the glans penis, it sometimes causes profuse bleeding. In women, chancres are usually situated on the labia, or nymphæ, and very rarely in the vagina. The discharge from a chancre contains the true syphilitic poison, and, of course, is capable of imparting the disease by contact or inoculation.

Mr. Carmichael divides the primary diseases which have been confounded with syphilis, into two classes: the first comprehends, 1st, a superficial ulcer, without induration, but with elevated edges; 2d, a similar ulcer, destitute not only of induration, but of elevated edges; 3d, an excoriation of the glans penis and internal surface of the prepuce; 4th, gonorrhœa virulenta. From the first of these four diseases he has been seldom able to trace any constitutional symptoms. The constitutional symptoms of the other three he describes as precisely alike.

Let us now consider more particularly the primary diseases which Mr. Carmichael has described as being liable to be confounded with syphilis, excluding from present attention, however, the subject of gonorrhœa. The first class of these diseases are,

1. *The superficial ulcer, without induration, but with elevated edges*, presents a reddish brown surface. It is not excavated, but is either on a level with the surrounding skin, or considerably raised above it, though sometimes the elevated ridges give an appearance of excavation. At its commencement, it appears in the form of a small pustule, attended with itching. It sometimes bears a strong resemblance to the phagedenic ulcer, from which, however, it may be distinguished by its raised and well-defined margin, the absence of the irregular and corroded surface, and of the pain of that ulcer. It may be known from a chancre, by having no callous edge and base. It occurs on the external surface of the prepuce, body of the penis, and serotum; and sometimes a circle of small ulcers of this kind forms upon the orifice of the prepuce, producing an obstinate phymosis, which remains after the sores are healed, and requires the use of the knife. To this ulcer, and its consequences, Mr. Carmichael applies the name of *pustular venereal disease*, from the character of the eruption.

2. *The simple ulcer, without induration, elevated edges, or phagedæna*, has neither the indurated base, which attends the true syphilitic chancre, nor the elevated edges which surround the primary ulcer of the pustular venereal disease; nor the surface of the primary phagedenic ulcer. It begins on the prepuce, or body of the penis, as a small pustule; then forms a thin crust, which soon falls off, leaving an excavated, round, or oval sore. In the second week, this fills up, and afterwards rises above the skin, presenting a smooth surface, of a healthy colour, but without granulations, and with somewhat of a fungous appearance. It most frequently occurs on the glans and internal surface of the prepuce, when it generally excites phymosis; but is sometimes on the outside of the prepuce, on the body of the penis, or on the serotum; and, in women, it takes place on the labia, perineum, and fossa of the nates.

3. *Excoriation of the glans penis, and internal surface of the prepuce, attended with purulent discharge*, is usually accompanied with gonorrhœa, and produces phymosis. The corona glandis is the part most affected; but when the prepuce can be retracted, the excoriation is found to be in patches only, with intervening spots of sound cuticle.

The whole of these cases, taken collectively, he names the *papular venereal disease*.

The second class of primary diseases, which have been confounded with syphilis, consists of two species, viz. the *phagedenic ulcer*, and the *sloughing ulcer*.

1. *The phagedenic ulcer* is described by Mr. Carmichael as a corroding sore, without granulations, or surrounding induration, spreading with great rapidity, and having its destructive process increased, instead of being checked like chancre, by mercury. It more frequently attacks

the glans, which it sometimes totally destroys, and occasionally, notwithstanding "every anodyne and lenient application, the ulceration will gradually proceed, until the entire penis is destroyed." The constitutional symptoms are, an eruption of tubercles, or spots of a *pustular* tendency, or both intermixed, preceded by fever, and terminating in ulcers covered with thick crusts, which often assume a conical form, healing from their centre, and extending with a phagedenic margin. The affection of the throat is a white, slimy-looking ulceration, which occupies almost the whole of the back of the pharynx in view; and may be followed by caries, exfoliation of the spongy bones, tenderness of the ossa nasi, and a foul discharge from the nostrils. The velum and uvula are occasionally destroyed, so that on looking into the mouth of a person in this lamentable state, there appears one vast continuous ulcerated cavity, covered with white viscid matter, and extending from the palate to the lower part of the pharynx.

2. The *sloughing ulcer* at first resembles a small black spot, which produces so little uneasiness, that it remains unnoticed for several days; it soon however increases, and, when the slough separates, the sore is not clean and granulating, as after simple mortification, but a corroding phagedenic ulcer appears, which becomes painful, assumes a bluish cast, and is soon covered again with a fresh slough. It proceeds in this manner, alternately sloughing and ulcerating, until the whole of the external organs of generation, and sometimes the bladder also, are involved, and even if the progress of the disease be checked, the orifice of the urethra is so contracted, that great difficulty in voiding the urine is experienced. The sloughing ulcer is said to produce the same kind of secondary symptoms as are connected with the phagedenic sore, and the whole of these affections Mr. Carmichael distinguishes by the name of the *phagedenic venereal disease*.

With respect to the *treatment* of the true syphilitic chancre, the fact of even this kind of sore being generally capable of cure without mercury, though often in a less expeditious manner, must be admitted, the proofs of it being most unequivocal.

In such cases, mercury should be omitted without delay; bark, sarsaparilla, guaiacum, and the nitrous or sulphuric acid, prescribed, with absolute rest, plenty of good fresh air, &c. One of the best dressings in these cases is a solution of the extract opium, in the proportion of ʒiiss to lbj of water, which may be applied by means of lint, laid under a simple pledget.

As every surgeon knows, a true syphilitic chancre, while small, may be cured by removal with the knife, or destruction with caustic, and if none of the virus has been absorbed, the patient will remain free from secondary symptoms. Astringent lotions, containing the sulphate of

copper, or that of zinc, and any common simple ointment, are the best general applications for chancres. The dressings must vary, however, according to the state of the sore; and, in the healing stage, when the granulations are high, the use of the nitrate of silver, or of the unguentum resinæ, with ʒj of the pulv. hydrargyri nitrico-oxydi, to each ounce of it, will materially expedite cicatrization.

The superficial ulcer, without induration, but with elevated edges, may be cured by dressing it with washes, either of oxymuriate of mercury and lime-water, in the proportion of a grain to an ounce; or of the submuriate and lime-water, in the proportion of ten grains to an ounce; or of the compound spirit of lavender alone, or diluted with one or two parts of water. Together with these applications, Mr. Carmichael orders decoctions of sarsaparilla, and small doses of antimony, either separately or in conjunction. 'Primary ulcers, with elevated edges (says he) are often extremely obstinate under the use of mercury. I have frequently seen that medicine exhibited in full doses, which maintained a strong mercurial action in the system for several months, without inducing them to heal.' He assures us, also, that stimulating and caustic applications do no good, and if the ulcer be irritable, make it extend. 'In fact, our principal care should be to keep the patient at perfect rest; and this observance, with gentle astringent applications, or mild ointments, seems to be all that is requisite,' the above medicines being prescribed rather to satisfy the patient, than as essential.

The simple primary ulcer, without either induration or elevated edges, requires the same treatment as the former case, except when it appears on the external surface of the prepuce, body of the penis, or on the scrotum, resembling a fungus, or soft wart; in which case, the wash should consist of two or three grains of the oxymuriate of mercury to an ounce of water.

The third example, 'excoriation of glans penis, and internal surface of the prepuce, attended with purulent discharge,' may also be cured by simple means, resembling those recommended for the two preceding cases.

Mr. Carmichael is strongly adverse to the plan of giving mercury in cases of phagedenic chancres, which he represents as being invariably rendered worse and more intractable by that mineral. With respect both to this and the *sloughing sore*, 'the treatment which succeeded best, was the use of means calculated to lessen inflammation and pain, including general blood-letting, antimonials, purgatives, cicuta, and opium. The local applications were warm fomentations, and bread poultices, frequently with the addition of opium. In every instance, low diet and the recumbent position were strictly enjoined.'

Of Buboes.—The absorbent glands in the groin are subject to en-

largements, which are altogether unconnected with venereal causes, and require to be discriminated from true venereal buboes. Mr. Hunter was of opinion, that commonly only one gland is affected by the absorption of true syphilitic matter; and, if this be the case, we have one criterion by which a true venereal bubo may be known from other swellings. The syphilitic poison also affects the glands nearest the seat of absorption, and never those which are situated in the course of the iliac vessels, and higher up.

The syphilitic bubo commonly begins with a sense of pain, soon followed by a small hard tumour, which increases, like every other inflammation that has a tendency to suppurate. If not checked, it advances to suppuration and ulceration, the progress of the matter to the skin being quick.

According to Mr. Carmichael, the distinguishing characteristics of a syphilitic bubo are more difficult to assign than those of chancre; but he conceives that the aching pains which attend it, the callous feel of its bottom, and its dark, foul, tawny appearance, may assist in forming a diagnosis. I perfectly agree with this valuable writer respecting the propriety of not ordering mercury for buboes, which have not been preceded by chancres.

With regard to such buboes as belong to what Mr. Carmichael terms the popular venereal disease, and arise from primary ulcers, which he distinguishes by the negative characters of having neither callosity, raised edges, nor phagedenic surface, his experience has not taught him that mercurial frictions will discuss these swellings. On the contrary, the trials which he has made of this medicine incline him to believe, that it tends to increase the inflammation and chance of suppuration; and that when in a state of suppuration, they will heal better if the patient be not subjected to a strong mercurial irritation. He observes, that buboes of this nature are often remarkably hard and indolent, without any tendency to subside or suppurate. In such cases, he says, the greatest advantage may be derived from the repeated application of blisters to the indurated bubo, which soon bring about either the dispersion or the suppuration of the tumour.

The buboes, which arise from the primary ulcer with elevated edges, are alleged to resemble the original sore in their tendency to form projecting or undermined edges, particularly when much mercury is employed; and, says Mr. Carmichael, if these edges are not removed by art, the disease may remain for months, and perhaps years, without healing. He prefers the knife for their removal, as caustic is too slow in its effect; and by this plan he has got many cases well in five or six weeks, which would have resisted any other mode of practice as many months. Full courses of mercury always increase their tendency to

burrow, and not unfrequently produce dreadful mischief; the integuments even up to the navel being undermined or destroyed.

Secondary symptoms.—According to Mr. Carmichael, when absorption of the syphilitic virus into the system takes place, ulceration of the throat is the earliest indication of the general disease; but the eruption in the skin is usually considered the first of the constitutional symptoms; and this, when truly syphilitic, is scaly, a circumstance by which it may be distinguished from the eruptions of the pseudo-syphilitic diseases, which are either papular, pustular, or tubercular. He describes the eruption as always consisting of scaly blotches, presenting either the character of lepra, or that of psoriasis, and unattended with any obvious degree of fever. He represents this as the eruption which follows the absorption of the virus of a true chancre. From a simple primary ulcer, patchy excoriation attended with discharge, or gonorrhœa virulenta, the eruption is papular, preceded by fever, and ending in desquamation. From the ulcer with elevated edges, without induration, the eruption is of pustules, in general phlyzacious, preceded by fever, and terminating in ulcers covered with thin crusts, that heal from their margins, and when the disease is on the wane, the eruption desquamates into scaly red blotches; while the eruption, consequent to a primary phagedenic ulcer, consists of tubercles, or spots of a pustular tendency, or both intermixed, preceded by fever, and terminating in ulcers, covered with thick crusts, which often assume a conical form, healing from their centre, and extending with a phagedenic margin. In the decline of the disease, this eruption also desquamates into scaly red blotches.

Venereal sore throat.—In the throat, tonsils, and inside of the mouth, lues venerea generally makes its appearance as an ulcer without much previous swelling. Common inflammation of the tonsils often suppurates in the centre, so as to form an abscess, which bursts by a small opening; but this complaint never looks like an ulcer, which begins on the surface, like the true venereal sore; it is always attended with too much inflammation, pain, and swelling, to be venereal, and immediately the little abscess bursts, the swelling subsides. The complaint is also generally attended with febrile symptoms.

Another disease is an indolent enlargement of the tonsils, which is peculiar to persons disposed to scrofula. Portions of thick mucus, or perhaps coagulating lymph, lie upon the surface of the tonsils, and are frequently mistaken for sloughs or ulcers. When doubts exist, they may be cleared away by removing the thickened mucus with a probe.

This excavated ulcer of the tonsils, however, is not at present universally regarded as a symptom peculiar to syphilis. Mr. Rose has repeatedly seen such a throat cured by sarsaparilla.

Nodes.—The swellings of the periosteum, tendons, and bones, arising

from syphilis, are so called. Their progress is extremely slow, and attended with little pain. In some cases, however, the pain is considerable, particularly in the night time. They continue a long time before matter forms, and then suppuration is very imperfect.

Sudden swellings of the periosteum, without nocturnal pains, are not venereal. Syphilitic nodes are described by Mr. Carmichael as indolent, slowly-increasing swellings, attended with little pain and inflammation, until in an advanced state. On the contrary, the nodes of diseases, liable to be mistaken for syphilis, seem in the first instance to affect the periosteum and soft parts covering the bone, and not the bone itself, as swelling and redness of the integuments are seen from the very commencement. These swellings arise suddenly, increase with rapidity, and frequently disappear without mercury, as quickly as they arose. In short, they are of a much more inflammatory character than syphilitic nodes.

The superficial bones are most liable to syphilitic nodes; for instance, the front surface of the tibia, the bones of the cranium, the triangular part of the ulna below the olecranon, &c.

Treatment of secondary symptoms.—When mercury is given internally, and salivation is aimed at, there are three preparations commonly preferred in syphilitic cases: the pil. hydrarg. which may be given in the dose of gr: x every night, either with or without opium, as circumstances may indicate; the oxydum rubrum in the dose of gr: i, also with or without opium; and lastly, a solution of the oxymuriate of mercury (sublimate,) one sixth of a grain dissolved in brandy, or any aromatic water, or made up into a pill, and given twice a day, being the usual dose. When it is intended, however, only to put the patient on an alterative course, the doses need not be so large, nor frequent; and the submuriate is very commonly preferred.

With respect to the preparations of mercury, in unequivocal cases of syphilis, the most simple are reckoned the best, not only in consequence of their acting with least violence on the system, but also because they prove most efficacious in the cure of the disease. Hence, frictions with the ointment, and the exhibition of the pil. hydrarg. are the most common plans.

It is incumbent to mention fumigation, another mode of introducing mercury into the constitution through the skin. It is one of the most ancient forms of administering this medicine, and was much praised in France by M. Lalouette. Mr. Abernethy, who published a description of its advantages, recommends a powder for the purpose, made by agitating the submuriate of mercury in water, mixed with the liquor ammoniæ carbonatis. The patient is placed in a machine, not unlike a sedan chair, but having an opening at the top, out of which he can con-

veniently put his head. A heated iron is placed at the bottom of it, and when the powder is thrown on the hot surface of the iron, it sublimes, and is deposited on the surface of the patient's body. The patient afterwards puts on his flannel waistcoat and drawers. No doubt, it would be quite sufficient to fumigate the inside of the clothes, and then let them be put on with care.

With respect to syphilitic nodes, mercury is frequently incapable of removing the whole of the swelling: in such cases, blisters applied over the tumour, and kept open with the savin cerate, are highly beneficial.

In the treatment of the constitutional symptoms, described by Mr. Carmichael as proceeding from the simple primary ulcer, patchy exco-riation attended with discharge, or gonorrhœa virulenta, this gentleman has recourse to blood-letting when the fever is considerable, the pulse full and strong, and the tongue furred, with severe pains of the joints. He then opens the bowels and the skin by antimonials, and 'when the febrile symptoms are reduced,' throws in the simple or compound decoctions of sarsaparilla with antimonials, occasionally giving 'the mercurial salts in alterative doses,' when the disease is completely on the decline. When iritis, however, is a consequence of these primary affections, he recommends the free use of mercury, until the inflammation is subdued.

When there are phagedenic symptoms, Mr. Carmichael's practice is first to subdue the febrile excitement by blood-letting, daily repeated until the pain and fever have abated; and he prescribes antimonials in nauseating doses, and opium; at the same time applying to the sores warm fomentations, with poultices of bread and water, or bread and a solution of opium; and confining the patient to bed, with the penis supported in the most easy and convenient manner. Cicuta, in large doses, and decoction of sarsaparilla, are afterwards given, 'when the primary ulcer is accompanied with constitutional symptoms;' but when there are only constitutional symptoms, he prescribes 'the decoction of the woods alone, or conjoined with antimony, or compound powder of ipecacuanha, or muriate of mercury.' During the co-existence of the fever and tubercular eruption, or spots of a pustular tendency, Mr. Carmichael is an advocate for blood-letting; and, besides the general means recommended in his essay, sometimes employs arseniate of kali, nitrous acid, and nitro-muriatic baths. For phagedenic ulcers in the throat, he praises the same general treatment, with the application of oxymel æuginis, a strong solution of muriate of mercury, or nitrate of silver, or fumigations with the sulphuret of mercury. Should these remedies fail, 'mercury may be used largely with advantage in checking the progress of the ulceration, even though it should exasperate the general disease.' This mineral, he observes, increases the ravages of

the disease in all its stages but the last. For ulceration and caries, the same plans are also recommended, and the pains in the joints and nodes are to be treated like those resulting from the primary ulcer with elevated edges.

For the secondary symptoms, proceeding from the ulcer with elevated edges, without induration, and characterized by a pustular eruption, Mr. Carmichael advises blood-letting during the febrile state, followed by antimonials, sarsaparilla, guaiacum, tar ointment, baths of sulphurated kali, or nitro-muriatic baths. Mercury, he says, is decidedly pernicious, until the pustules terminate in scaly blotches, instead of forming ulcers; and then mercurials, in alterative doses, conjoined with sarsaparilla and guaiacum, may occasionally be employed with benefit. The same general treatment is recommended for the white aphthous sore throat, often attendant on this form of disease, with common detergent or mercurial gargles; oxymel æruginis, and fumigations of the sores with the sulphuret of mercury. For the pains in the joints, Mr. Carmichael praises the same constitutional treatment, together with leeches, fomentations, bread and water poultices, blisters, and ointment of tartarized antimony. But mercury, he says, should be particularly avoided while inflammation of the knee exists. As for the nodes, resulting from the primary ulcer with elevated edges, he recommends the same general and local means, and sometimes a division of the periosteum. When the preceding means prove insufficient, and the disease is on the decline, he allows that a mercurial course may be of advantage."

GONORRŒA, or Clap.—When an irritating matter of any kind is applied to a secreting surface, the natural secretion becomes increased in quantity, and altered in quality; and when the ordinary mucous secretion of the urethra in men, or of the meatus urinarius, nymphæ, &c. in women, is, in this manner, changed into a fluid resembling pus, the disease is named a *gonorrhœa*, or *clap*.

The complaint has been supposed to arise from the application of venereal matter to the urethra. A preternatural discharge from this passage, however, may result from any kind of irritation affecting it; and no doubt can be entertained, concerning the frequent origin of elaps from the mere contact of various kinds of acrid and infectious discharges with the urethra, labia, nymphæ, &c. in coition.

When the complaint follows some kind of contamination, received in coition, it usually begins about six, eight, ten, or twelve days afterwards; but it is capable of affecting some persons much sooner, and others much later. The first symptom is usually an itching at the orifice of the urethra, sometimes extending over the whole glans penis. A little fulness of the lips of the urethra is next observable. Very soon after

the discharge has appeared, the itching changes into pain, especially at the time of voiding the urine. The penis, and particularly the glans, are affected with swelling. The latter part has a transparent appearance around the mouth of the urethra, the skin seeming distended, smooth, and red, like a ripe cherry.

The natural discharge from the urethra is first changed from a transparent viscid secretion, to a watery, whitish, pellucid fluid; and this, becoming gradually thicker, assumes the appearance of pus. The matter often changes its colour and consistence; sometimes it is almost white, sometimes quite yellow, and in other instances greenish.

In ordinary cases, the affection of the urethra does not extend far along this canal from its orifice; perhaps not farther than an inch and a half or two inches: this was what Mr. Hunter named the *specific extent* of the inflammation.

Besides the symptoms already mentioned, a very acute, scalding pain is experienced in making water, which frequently can only be discharged by drops, or in an extremely small, broken stream. The bladder being also very irritable, the patient is incessantly troubled with a feel as if he wanted to make water, and is obliged to be repeatedly emptying that organ of what little collects in it.

In the neighbouring parts, a variety of other affections are occasionally produced; as pain, soreness, and uneasiness, all over the pelvis; and the scrotum, testicles, perineum, anus, and hips, may become disagreeably sensible. The testicles often require to be suspended in a bag-truss, and are so irritable that the least exertion makes them swell. The inguinal glands may inflame and enlarge, producing the kind of swelling termed a *sympathetic bubo*. In many instances, the patient is obliged, almost every five minutes, to make water, with violent pain, not only in the bladder itself, but in the glans penis; the pain frequently continuing after the urine has been discharged.

Treatment.—Gonorrhœa is one of those peculiar diseases which have no specific remedy; but which, at the same time, have a propensity to get spontaneously well, and gradually wear themselves out: The complaint, in all its forms, is at first evidently of an inflammatory nature; and though we cannot at once effect a cure, we may palliate the symptoms, and shorten their duration, by the early adoption of certain antiphlogistic means.

Linen, wet with a cold evaporating lotion, should be kept constantly applied to the penis. The patient should keep his bowels well open with saline purges; live more abstemiously than common, avoiding spirituous drinks, and all spicy food; and render the quality of his urine as little irritating as possible, by taking in the course of the day copious draughts of barley-water, mucilage of gum-arabic, &c.

After a few days, some attempt may be made to alter the action of the vessels of the lining of the urethra, so that they may gradually be brought to secrete again the healthy mucous fluid, with which the canal is naturally lubricated. For this purpose, astringent injections may be applied. The most common is that containing the sulphate of zinc; and for first use, not more than five grains of this salt should be dissolved in four ounces of water; but the application may afterwards be strengthened. When this injection has little effect, another one, containing the oxymuriate of mercury, sometimes answers better, one grain of which, in eight ounces of distilled water, will form a fluid sufficiently strong for first employment. Another very good astringent injection is composed of fourteen grains of plumbi superacetat dissolved in eight ounces of water.

As injections are only temporary applications, it is evident that they ought to be very frequently used. At first, however, two or three times a day will suffice. The mouth of the syringe should not be pressed against the orifice of the urethra, as it creates a great deal of irritation, and sometimes ulceration.

When the strangury is severe, and there is trouble from nocturnal erections, chordee, &c. opium is to be prescribed.

After the inflammatory stage of the disease is over, the balsam of copaiva may be exhibited, or cubebs, which, indeed, has been recommended as a specific remedy for gonorrhœa, even in its early inflammatory stage. The dose is a dessert spoonful of the powder, an hour before breakfast; a second, six hours afterwards; and a third, at bedtime. The powder is to be taken in water. If given while the discharge is considerable, and the inflammation great, the painful symptoms, it is asserted, will be removed in two days, and the discharge generally terminate on the third or fourth day. An antiphlogistic regimen is to be observed, and it is also necessary to continue the powder a day or two after the discharge has disappeared. The trials which I have made of cubebs incline me to consider it as having similar virtues to those of the balsam of copaiva.

Chordee.—In cases of gonorrhœa, when the inflammation is not confined merely to the surface of the urethra and its glands, but affects the reticular membrane, it produces in the latter part an extravasation of coagulating lymph, which unites the cells together, destroys the power of distention of the corpus spongiosum urethræ, and makes it unequal, in this respect, to the corpora cavernosa penis. Hence, at the time of an erection, a curvature takes place, termed a *chordee*. The concavity of the curvature is generally at the lower part of the penis.

When much inflammation is present, bleeding from the arm, and more especially from the part itself, by leeches, is proper. The penis

should be exposed for some time to the steam of hot water. Camphorated fomentations and poultices are also remedies, of which experience makes a favourable report. At the same time, opium and camphor may be given as internal medicines.

When all inflammation has been subdued, the indication is to promote the absorption of the coagulating lymph; and, for this purpose, nothing is better than frictions on the part with camphorated mercurial ointment.

Sympathetic bubo.—Gonorrhœa is sometimes attended with a swelling of the inguinal glands, termed a *sympathetic bubo*. This complaint is supposed to originate from mere irritation, and not from the absorption of matter. We know that the lymphatic glands are capable of becoming inflamed in this manner; for, in various diseases, we see them frequently swell at a more remote situation from the thoracic duct than the local complaint, which is the exciting cause of their enlargement. The pain which sympathetic swellings of the glands occasion is much less than that arising from the true venereal bubo, and it was the opinion of Mr. Hunter that they seldom suppurated.

Whatever may be the nature of a sympathetic bubo, certain it is that mercury is by no means necessary or useful in the treatment. This is a fact which may be considered as fully established, and confirmed by the experience of the most intelligent practitioners. The swelling may be diminished by the repeated application of leeches, and by keeping up a continual evaporation from the part, by means of linen wet with the liquor plumbi acetatis dilutus. In short, the case is to be treated as a simple phlegmonous inflammation. When a poultice is found to afford more ease than cold applications, it is to be used.

URETHRA, Strictures of.—There are different distinctions of this disease, but they are probably best comprehended under three divisions, viz: 1st, *inflammatory*; 2d, *permanent*, which may be narrow as if a piece of pack-thread were tied round the urethra, or more extensive like a piece of tape, or fibrous like a piece of thread drawn across the diameter of the passage: the two former are caused by effusion into the cellular substance on the outside of the urethra, the latter by effusion into it, the result probably of the inflammatory stricture; 3d, *spasmodic*, or contraction of the muscular fibres of the urethra. The *spasmodic* and *permanent* strictures are sometimes combined. In the *broad permanent* kinds the thickening may be entirely upon one side of the urethra, and in the *pack-thread* kind it widens at each extremity, being narrowest in the middle, like two cones with their apexes in contact. There may exist at the same time one or more *permanent* strictures, and which are perpetually in danger of becoming more grievous by the occurrence of spasm. Some, however, doubt the muscularity of the urethra, but it is only on presumption that it is so that

we can explain its morbid action. When there exists but one stricture, it will be generally found just behind the bulb of the urethra, or about six and a half or seven inches from the orifice of the urethra. The strictured part becomes sometimes quite impervious, when the patient's life is saved by making an incision into the urethra beyond the strictured part, or by the urine itself ulcerating its way through the perineum.

Symptoms of stricture.—Diminution of the stream of urine, which, however, is generally disregarded by the patient, until more difficulty arises, such as a more frequent desire of voiding his urine, attended with pain near the end of the urethra, as in cases of stone; pain, straining, &c. As the stricture increases, the urine is expelled in a forked or spiral stream, and is turbid; uneasiness of the loins, emissions of semen during sleep, gleet; the semen is obstructed during coition, with an irritable state of the bladder, attended with mucous discharge, and sometimes swelled testicle. The patient is liable to strangury if he expose himself to cold or commit any excess. Cases occur in hot climates, when intermittents come on, and go through all the regular stages, the patient experiencing a frequent desire to make water during the cold fit. Mr. Hunter doubted if strictures were caused by gonorrhœa, or improper treatment of it, believing them to arise in common with strictures in other canals of the body. But the inflammatory kind is produced by stone in the bladder, piles, stimulating diuretics, fistula in ano, absorption of cantharides, &c. but most commonly from gonorrhœa. Permanent stricture is readily known from stone in the bladder by its never passing in a full stream. The spasmodic stricture is periodical.

Treatment.—In the *inflammatory* stricture we must resort to general bleeding, to purging, application of leeches, cold washes to the perineum, pubes, &c.; also, poultices and fomentations. Blisters, also, may be applied to these parts covered with camphor, when not arising from absorption of cantharides.

The *permanent* is treated, first, upon the principle of mechanical dilatation by means of bougies, or rather pressure, with a view to promote absorption of the effused matter outside of the urethra, which is now said to be the immediate cause of the malady. Second, by destroying the folds of the puckerings of the stricture with caustic, as advised by Sir E. Home. Sir Astley Cooper, in his lectures, is in favour of the common bougie, and Mr. S. Cooper thinks the caustic one advisable in the pack-thread stricture only. In using the common bougie we should begin with small ones, pass them daily, and gradually increase them in size until the stricture be entirely overcome. The bougie should be retained in the urethra for an hour, to give the parts time fully to dilate; during this time the patient had better be lying

down. It is well in all cases to obtain an accurate idea of the kind and situation of the stricture, which is to be done by passing a soft bougie through it, leaving it there a few minutes and marking it at the extremity of the urethra ; it is then to be withdrawn, when the indentation and the mark will give the required information. It will always be proper to pass a bougie every week, even after a cure, to prevent a relapse. The common bougies have the advantage of dilating more than one stricture at once, which is not the case with the caustic. But if the caustic or armed bougie be preferred, a small piece of caustic should be inserted into an aperture made in the end of a common bougie, and there secured. Having cleared the passage, and ascertained the precise distance of the stricture from the end of the penis with a common bougie, the armed one is to be introduced and held with a moderate degree of firmness against the stricture, when it is to be withdrawn. This process to be repeated daily until it passes. The habit may at the same time require bark, &c. and attention should be paid to the digestive functions.—See Hunter on Venereal Disease, Home and Wheatley on Stricture.

URETHRA, *false passage in*.—This is caused by the bougie, when used for stricture, forcing its way through the urethra into the adjunct cellular substance, either from ulceration by pressure, caustic, or by manual violence. Into this passage all bougies will pass, leaving the stricture unmolested. The stricture being once passed, it is to be treated as described in the preceding article. Elastic gum and metallic flexible catheters are useful in these cases, as the patient can pass his urine, without withdrawing them. It may be proper to open the whole false passage throughout its entire extent, to make it heal, and prevent the instruments from entering anew. Mr. Hunter recommends an operation for the removal of this malady.

VERDIGRIS, (*Ærugo*).—An impure acetate of copper.—See *Metals*.

VERMIFUGE, (from *vermis*, a worm, and *fugo*, to drive away).—See *Anthelmintics* and *Worms*.

VERTEBRÆ, *disease of*.—This disease has been well treated of by Mr. Pott. It is marked by a loss of the power of moving the lower limbs, is most frequent in children, and goes on to an actual diseased state of the vertebral bones or their ligaments. Curvature of the spine, which is always from within outwards, soon follows, with general loss of health. It is very analogous to white swelling in the other joints, and may in general be treated in a similar way. Caustic issues on each side of the column are very useful. Different machines have been invented to remove the distortion, but the main object must be to restore

the health of the child, and the distortion, which is apt to remain permanently, is comparatively of minor importance.—Consult Pott on Paralysis of Lower Extremities, S. Cooper's works, &c.

VERTIGO, (*Giddiness*).—This affection arises from an over-fulness of the vessels of the head, or is symptomatic of indigestion, hysteria, or hypochondriasis. The swimming of the head comes on at intervals, all objects around the patient seem to him to have a rotatory motion, he staggers, and seizes on something to keep himself from falling. When symptomatic, it is not dangerous, and ceases upon the subsidence of the primary affection. But when caused from over-fulness, general and topical blood-letting will be proper, together with frequent doses of cooling physic, low diet, &c.

VINEGAR, *Acetum*, which see.

VIOLET, (*Viola Odorata*).—A perennial plant, of the class syngenesia, and order monogynia, the recent flowers of which, made into a syrup, are sometimes medicinally employed as a mild laxative in the complaints of children. The principal use, however, of the syrup of violets is as a chemical test of the presence of uncombined acids and alkalies, changing the former to a blue, and the latter to a green colour.

VISCERA, *diseases of the*.—Under this term may be included the specific inflammations to which the lining membrane of the abdomen and the stomach and intestines are subjected.

1st. **PERITONITIS**, or *inflammation of the peritoneum*.—This may be seated in the general range of the peritoneum, or it may extend to the omentum, and even to the mesentery; again, it may be acute or chronic in its character.

True peritonitis occurs as a symptom in puerperal fever; but its general causes are those of inflammation in general, as cold, external injuries, ulceration, and rupture of some portion of the alimentary canal, and consequent extravasation of the contents of the stomach and bowels; and also a morbid transfer of action from any other portion to the alimentary canal.

The *symptoms* are chills and shiverings at the commencement, with a quick and frequent pulse, a sense of heat and pain in the abdomen, sometimes confined to one part, and at others more diffused: this pain is greatly increased by pressure, but there is no inclination to go to stool. In the course of twenty-four hours, the symptoms are greatly increased, and the abdominal pain, and the tenderness, to such an extent, as to render the weight of the bed-clothes intolerable. The pulse rises to 120 or 130; the tongue, which has been little affected before, begins to be covered with a cream-coloured mucus, and although it is moist, great thirst is experienced. The abdomen now becomes tense and swollen, and the patient seeks a temporary relief by remaining mo-

tionless on the back, with the limbs slightly elevated. The tension continues to increase to the sixth, seventh, or eighth day, when, unless the most active measures have been pursued to abate the disease, death generally occurs. Previously to this event, the pain will sometimes suddenly cease, and the change has been frequently mistaken for amendment; but if we attentively examine the condition of the patient, we find that he is rapidly sinking, and a collapsed countenance, clammy sweats, cold extremities, and laborious respiration, all tell that death is at hand.

Inflammation of the peritoneum is distinguished from colic by the permanency of the pain, the frequency of the pulse, and the tenderness of the abdomen, and by the want of inclination to evacuate the bowels. The diagnosis of bilious peritonitis and enteritis is more difficult, although in the latter disease there is obstinate constipation and frequent vomiting, whilst the pain is more acute, and not so much aggravated by external pressure.

Treatment.—Bleeding, both general and local, should immediately be practised, afterwards applying a large folded flannel wrung out of hot water, to the abdomen, and allowing it to remain there until dry, when it may be renewed. Purging is not demanded, except in puerperal peritonitis, although the bowels may be gently opened by castor oil, small doses of the sulphate of magnesia, or an emollient glyster. When the constitutional effects are partly subdued by bleeding, a blister may be placed over the abdomen with decided benefit.

When the *omentum* is primarily concerned in the inflammation, the pain is more limited, and confined to a little above or below the navel. The *mesenteric* inflammation is also milder than the true peritoneal affection, the chief point of tenderness being about the navel, and the disease is generally accompanied with inflammation of the spleen, liver, or intestines, and of course requiring a similar treatment.

Chronic peritonitis is a slow and insidious disease, characterized by superficial and pricking pains over the abdomen, without a laxity or tension of the bowels: the pulse is accelerated, the tongue white, the thirst great, and the countenance pallid. The disease is frequently the result of protracted acute peritonitis, or it may be caused in age or delicate systems by such occupations as confine the abdomen in a habitual state of compression, by an exposure to unhealthy damp or cold situations, or by a long suffering from intermittent fever.

The *treatment* is merely palliative. If much pain be present, bleeding must be resorted to, and likewise the application of a blister to the abdomen; in other cases, sudorifics, the tincture of squill and cantharides, and a nourishing diet, form the treatment recommended by Broussais. Dr. Pemberton, who wrote on this subject, advised another

mode of treatment ; he forbade the use of animal food, and kept his patients on milk and vegetable diet, ordered a small bleeding once or twice a week, by leeches or the cupping glass, and kept the bowels open by the mildest cathartics. Dr. Pemberton further differed with Broussais in considering this disease as curable.

INFLAMMATION OF THE STOMACH, (*Gastritis*.)—May be divided into two varieties: firstly, the adhesive inflammation, when the pain is very acute, and the fever violent ; and secondly, the erythematic inflammation, attended with a blush extending to and visible in the fauces, the pain more moderate, and the fever less violent.

In both varieties, the causes are alike ; as external or internal cold, suddenly applied in a heated state of the stomach, acrid substances, or excess in eating. All indigestible food and ardent spirits may likewise be regarded as causes, as well as repelled gout and cutaneous diseases. The *symptoms* are somewhat varied in different cases ; cardialgia will prevail in one instance, vomiting in another, whilst in a third the pylorus is especially the seat of inflammation, rendering digestion imperfect, and the bowels constipated. The most decisive symptoms are a permanent local pain and general emaciation, increasing with the prolongation of the disease, and resisting every means for their abatement.

Gastritis, in its acute form, may require many venesections before its violence is controlled, and the sooner bleeding is practised after the first symptom, the more valuable is the remedy. An emetic, of course, presents the readiest means of attacking this disease, when dependent on improper aliment, afterwards supplying the patient with mucilaginous drinks, and applying a blister to the pit of the stomach.

In idiopathic inflammation of the stomach, Dr. Cheyne, of Dublin, recommends entire abstinence from food and medicine until the inflammation has been subdued by bleeding, fomentations, and blistering ; and when this has been accomplished, he administers small doses of calomel and opium, every third or fourth hour, alternating these medicines with a little of the solution of Rochelle salts, or the effervescing draughts.

INFLAMMATION OF THE INTESTINES, (*Enteritis*.)—Of this disease, there are two species: 1st, *phlegmonous* ; 2d, *erysipelatous* ; the latter only arising in the advanced stages of other diseases, and indicating that a fatal termination will shortly result.

Causes.—Besides those enumerated under inflammation, we may add poisons, or any acrid substances taken into the stomach, indurated feces, acrid bile, spasmodic colic, intus-susception, strangulated hernia, cold applied to the feet or abdomen. **Diagnosis.**—From colic, by the fever, soreness, and tension ; from gastritis, by the vomiting and the burning pain

being much less severe. It is a very dangerous disease, and liable to relapse.

Symptoms.—Very acute pain, tension, and soreness throughout the abdomen, particularly near the umbilicus, attended with vomiting of bilious, or dark fetid, and sometimes stercoraceous matter; thirst, heat, obstinate costiveness, cructations, great anxiety; quick, small, and wiry pulse. Sometimes great tenesmus and black mucous discharges occur from the bowels. There is great prostration of strength, and contractions of the bowels into hard swellings, &c. The inflammation at length terminates in *resolution*, known by the passage of feces or some critical evacuation, gradual abatement of the pain, and other symptoms; or by *suppuration* or *ulceration*, evidenced by rigours and discharge of pus by stool; or gangrene, distinguished by sudden relief from all pain, attended with a sinking of countenance, irregularity of the pulse, cold sweats, hiccough, and death.

Treatment.—The indications of cure for inflammation are generally applicable. The smallness of the pulse must not deter us from drawing blood; indeed, it becomes fuller by such depletion; and the operation should be performed while in the warm bath, from a large orifice, so as to produce fainting, and repeated every few hours, until relief be obtained. Leeches, blisters, and warm fomentations to the abdomen, are proper; also, purgatives, laxative and tobacco clysters, after venesection; the patient should drink freely of mucilaginous drinks, and avoid all kind of crude aliment for some time after recovery. Instead of hot fomentations to the abdomen, some give the preference to cold evaporating lotions, ice, &c. The purgatives should be mild, and not administered until the violence of the inflammation is in some degree abated; the same may be said of opium.

VITRIOL, (*Vitriolum*.)—There are three compound substances bearing this appellation: The white vitriol, or sulphate of zinc; the green vitriol, or sulphate of iron; and the blue vitriol, or sulphate of copper.—(See these respective substances, under the head of *Metals*.) The sulphuric acid is vulgarly called oil of vitriol, or vitriolic acid.

VOLVULUS, (from *volvo*, to roll up.)—See *Introsusception*.

WARTS.—Mr. Hunter says, that a wart appears to be an excrescence from the cutis, or a tumour formed upon it, which becomes covered with a cuticle, either hard or soft, according to the hardness or softness of the skin from which it arises. Warts often bleed very profusely, and are sometimes very painful, but being adventitious substances, and no part of the original fabric, their powers of life are small, and upon the application of stimulants, soon diminish, drop off, or disappear.

Treatment.—Soft warts, such as appear on the pudenda, penis, lips,

&c. are most expeditiously removed by the application of the subacetate of copper and savin leaves' powder, in equal parts, and sprinkled over them daily. When hard, and situated upon the hands, for instance, we may get rid of them by daily applying caustic, or the sulphuric or nitric acids, and paring down the surface as it becomes destroyed. Either kind may be removed by the knife, or ligature of silk, particularly if pendulous, and applying caustic to the roots. Those arising in syphilis have nothing of that disease in them, consequently do not require mercury, and readily yield to the above treatment.

WATER-BRASH.—See *Pyrosis*.

WAX, (*Cera*.)—A solid concrete substance, gathered from vegetables by bees, and obtained from their combs after extraction of the honey by heat and pressure. When bleached and purified, it is called white wax, and is occasionally employed as a demulcent and emollient in diarrhœa and dysentery. The principal use of this substance is in the preparation of the various ointments and cerates of the pharmacopœia.

WHITES.—See *Leucorrhœa*, under the head of *Uterus*.

WHITLOW, (*Paronychia*, or *Panaris*.)—A painful and inflammatory affection about the end of the finger. The authors upon this subject have divided the affection into four varieties. The first is situated under the cuticle, beginning at the corner, and spreading around the root of the nail in the form of a small tumour, in which matter is collected. This is readily cured by giving free exit to the matter, and applying poultices and simple ointments. Sometimes the nail is thrown off, but another soon supplies its place. The second species comes on with heat, pain, soreness, &c. but the skin is not discoloured. In two or three days a thin matter shows itself just under the integuments, which must be treated in the same way as the preceding. The third species is much more formidable, and is situated in the theca of the flexor tendons. It is attended with extreme pain, heat, and throbbing; matter soon forms, but from the tenseness of the theca, skin, &c. over it, a fluctuation is not perceptible at the part, but often at the joints, and even in the palm of the hand. The fourth species is situated under the periosteum, and is attended with deep-seated acute pain and inflammation; the swelling in this instance is chiefly confined to the end of the finger, instead of extending to the hand, as in the last species, and the bones often become carious. The throbbing in all cases of whitlow is so severe as to be felt up the arm. Its causes may be bruises, and punctured wounds, especially when inflicted during dissections.

Treatment.—Resolution is to be attempted in the outset of the malady, for in no species but the first is suppuration desirable. For effecting the process of resolution, some advise emollient fomentations and poultices, while others urge the use of astringents and discutients, as vinegar,

spirit, the solution of muriate of ammonia, &c. All agree in directing, in severe cases, bleeding, purging, and opium internally, carrying the arm in a sling, &c. But when we feel assured that pus has formed, we should lose no time in making a free incision down upon it, to give it exit, applying poultices and fomentations, dilating the wound, and making farther openings if subsequently necessary. Richter advises, in almost all cases, to make an incision, whether matter flows or not; for he observes that the division of the skin and other parts takes off the tension, and insures immediate relief.

WINE, (*Vinum*.)—The name applied by chemists to all fermented liquors, but restricted in general, and particularly in medical language, to the fermented juice of the grape. Wine, when good, and of a proper age, is a valuable agent in the hands of the physician, as a tonic, antispasmodic, and nutritive; in the low stage of typhus it will sometimes afford the only remedy; in tetanus, chorea, and other spasmodic affections, it is equally useful, and may in general be recommended in convalescences from severe diseases. The usual varieties employed by the physician are, port, Madeira, and sherry; but cases sometimes occur when other kinds may be preferred. The doses must depend upon the condition of the patient, the nature of his disease, and should always be administered under the direction of the medical attendant.

The wines of aloes, antimony, colchicum, gentian, iron, ipecacuanha, tobacco, opium, rhubarb, and hellebore, are frequently prescribed, when it is desired to administer those substances in a mild or tonic form.

WINTER'S BARK, (*Winters Aromatica*.)—A tree of the class polyandria, and order tetragynia, the bark of which is used as a carminative and tonic, in dyspepsia and scorbutus, chiefly as an adjunct to stomachic infusions.

WORMS, *Intestinal*, (*Vermes*.)—The kinds of worms most frequently found infesting the human intestinal tube are three, viz: 1st, the *ascarides*, or small white-thread worms, discovered in the rectum, lodged in a bed of mucus. 2d, the *teres*, or lumbricus, a long round worm, chiefly seated in the small intestines and the stomach. 3d, the *tænia*, or tapeworm, which is flat, and consists of many joints, each possessing a distinct animal organization; is of great length, often many yards, and extends throughout the whole intestinal tube; very difficult to eradicate, and extremely common with the inhabitants of Germany and Switzerland. The *tænia* is generally found in adults, and the *ascarides* and *teres* in children. Those persons whose stomachs and bowels are loaded with mucus, whose powers of digestion are weak, and who live in a bad atmosphere, and subsist chiefly on crude or vegetable food, are most liable to be pestered with these animals.

The symptoms of worms are numerous, and often alarming; the fol-

lowing are among the most frequent: Variable appetite, fetid breath, and eructations, pains in the stomach, grinding the teeth, particularly during sleep, picking the nose, paleness, hardness and fulness of the belly, slimy stools with griping pains about the navel, heat and itching at the nose and anus, short dry cough, emaciation, slow fever, convulsions, and sometimes death. The animals are frequently voided both by vomiting and by stool.

Treatment.—Three classes of vermifuges are in use: 1st, those that act by simple *purging*, as aloes, rhubarb, the submuriate of quicksilver, castor oil, &c. in conjunction with rue, tansy, wormwood, and other bitters. 2d, such as act by *mechanically irritating* the worms, as powdered tin, cowhage, &c. 3d, those acting *chemically*, by dissolving the mucus in which the worms are lodged, as lime-water, &c. For the ascarides more particularly, clysters of lime-water and aloes, also purges of the same kind are useful. The introduction of a candle smeared with mercurial ointment into the rectum, is recommended by Darwin. But in tænia, the common spirits of turpentine, in doses of f. ʒj to ʒij fasting, is almost a specific, the patient drinking plentifully of flax-seed tea, or the like, to defend the kidneys. Opium may occasionally be added. Turpentine clysters are useful in all cases of worms. Cataplasms of tobacco to the abdomen are recommended by Dr. Barton, and sulphurous waters and pink root are also useful. The diet should consist chiefly of animal food, avoiding crude fruits and vegetables, and the patient should enjoy good air, use exercise, and take tonic medicines.

WORM, Guinea, (*Dracunculus*).—In this affection there first appears a hard tumour like a boil, which goes on to suppuration, when the head of a worm a foot or two in length, and of the size and appearance of a violin string, protrudes, which is to be gradually and carefully drawn out. It is generally met with in hot climates, and is somewhat analogous to the chigre of the West Indies.—See Thomas's Practice, and McGregor's Medical Sketches.

WORMWOOD.—See *Artemisia*.

WOUNDS.—A wound is a recent and sudden breach in the continuity of parts. The danger attending wounds is in proportion to their size, their nature, whether cut, bruised, or torn, the importance of the part injured, and the state of the constitution. Thus tendons, nerves, joints, &c. when wounded, are attended with much more danger than integument and muscle.

Wounds are of four kinds: 1st, *incised*, or simple division of parts with a cutting instrument; 2d, *punctured*, as those inflicted with a pointed instrument, as the small sword, bayonet, &c.; 3d, *contused*, or bruised; 4th, *lacerated*, when the parts are torn asunder. The second and fourth may be complicated with poison when inflicted with poisoned

arrows, the bites of serpents or rabid animals. Gun-shot wounds are generally contused, though occasionally compounded with the lacerated.

Of the first, or incised wounds.—All blood and extraneous matter must be carefully removed, and if no blood-vessel of any magnitude be wounded, the edges of the wound are to be brought into exact contact, and retained so by sutures, or by adhesive plaster and bandages, giving the latter the preference in all cases where a suture is not absolutely necessary. The parts should, as much as possible, be kept at rest, and relaxed by position, particularly if the muscles be transversely wounded and retracted. The dressings should not be removed for the first four or six days, and no balsams or irritating applications whatever be employed. Venesection and the antiphlogistic regimen may be sometimes necessary.

Of the second, or punctured wounds.—These are often dangerous from their frequently extending to a great depth, injuring blood-vessels, nerves, viscera, tendons, aponeuroses, producing violent pain, general irritation, tetanus, extensive inflammation, and forming deep-seated abscesses, &c. They are also tardy in healing, in consequence of the puncturing instrument tearing and bruising the parts it passes through. The narrowness of the orifice, too, offers impediments to the extraction of foreign bodies, exit of matter, &c.

Treatment.—The practice of enlarging the orifices of punctured wounds, with a view of converting them into incised ones, by the use of setons, tents, injecting stimulants, &c. is improper; probing, too, is only necessary to ascertain if there be any extraneous body or fragment of bone to remove, and should not again be resorted to, unless to explore sinuses which may subsequently form. Incisions are only proper where fragments of bone or foreign bodies are to be extracted, vessels tied, or accumulations of matter evacuated. As many punctured wounds will unite throughout their whole extent without forming matter at all, we should endeavour to bring about this favourable result, after extracting foreign bodies, &c. by applying adhesive plaster and a moderately tight bandage along the track of the wound, enjoining rest and the antiphlogistic regimen; also, local and general bleeding, cold washes, with purging and diaphoretics, if inflammation and sympathetic fever ensue. Opium should be administered in large doses, if pain or spasms become violent. Should suppuration be inevitable, fomentations, poultices, and the other means, described under the head of *Inflammation*, must be adopted.

Of the third and fourth, or contused and lacerated wounds.—The contused wound is caused by the collision of a blunt instrument against some part of the body; the lacerated, by a force that overcomes the

attraction or cohesion of the fibres of a part, by violently tearing them asunder. Both are much more dangerous than the incised. They are seldom attended with much hemorrhage, even when large vessels are injured, or limbs torn off the body. Such wounds have little disposition to unite by the first intention; for, in addition to the breach of continuity the parts are so grievously injured, that inflammation, sloughing, and gangrene often follows. Violent constitutional irritation or tetanus often ensue, particularly when tendinous parts have suffered.

Treatment.—Notwithstanding the jagged edges and unfavourable appearance of these wounds, we are, after having cleansed the parts, to approximate the lips as well as the circumstances will permit, retaining them with adhesive plaster and bandages moderately tightened. But if the state of the wound from its destructive violence do not admit of such treatment, we are to apply saturnine washes, poultices, fomentations, &c.; and should vehement inflammation arise, the application of leeches, together with general bleeding, purging, and other antiphlogistic means will be proper. When suppuration or mortification ensues, the case must be treated accordingly.

WOUNDS OF ARTERIES.—When an artery is wounded, the blood issuing is of a bright red colour, and flows per saltum or by jerks, with great rapidity; and if the artery be compressed between the wounded part and the heart, the hemorrhage ensues. But if a vein be wounded, the blood flows in an even stream, is of a dark red colour, and requires for its suppression that pressure be made on that side of the wound most remote from the heart. The danger attending wounds of arteries is in proportion to the magnitude of the vessel wounded; thus the iliac, femoral, both tibials, interosseal, carotids, subclavian, brachial, ulnar, radial, require to be laid bare and tied to prevent the hemorrhage from proving fatal. Smaller arteries generally, though by no means always, may recover by the efforts of nature alone, or by the proper application of pressure, without being tied. Wounds of arteries internally are mostly fatal. After a considerable quantity of blood is lost, it produces syncope, (or even death if the vessel be very large) which puts a period to further effusion until the patient revives, when the hemorrhage is apt to recur. Dr. Jones, from his experiments, discovered, that after the division of an artery the hemorrhage is checked by the effusion of blood into the surrounding cellular substance and between the artery and the sheath, (the former having retreated into the latter) but more particularly by the diminished velocity of the circulation. Thus a clot over the mouth of the artery, within its sheath, called by Dr. Jones the *external coagulum*, presents the first complete barrier to the effusion of blood. This sets the blood at rest within the orifice of the divided vessel, which also coagulates and forms a clot there, called by the same

writer the *internal coagulum*. In the mean time, the cut extremity of the artery inflames, and the vasa vasorum pour out lymph between the two clots, which intermingles with them, and adheres to the inner coat of the artery, and fills up its orifice. This is the permanent cause of the suppression. The temporary coagula are soon absorbed, the mouth of the vessel contracts, while more lymph is poured out, uniting it to the sheath and surrounding parts in an undistinguishable mass. The artery afterwards becomes a ligamentous cord as far as where the first branch goes off. When an artery is divided near a lateral branch, no *internal coagulum* forms. If an artery have suffered a puncture or partial division merely, blood is effused, which forms a coagulum between the vessel and its sheath, extending an inch or two above and below the wound. This gives a temporary check to the hemorrhage, while the vasa vasorum pour out lymph and permanently repair the injury. "In this way," says Dr. Jones, "a vessel, one fourth divided, will heal, leaving little or no scar or obstruction in the canal." In larger wounds the effused lymph renders the vessels impervious, and sometimes its remaining part will be ulcerated through.

But when nature is thus unable to effect a cure, the surgeon is called upon to give prompt succour by tying the vessel or applying compression.

Of compression.—The tourniquet is only of use to repress the hemorrhage while other means are preparing, and as a safeguard, by keeping it on the limb to be in readiness in case of a second bleeding. Sponge tents, &c. should never be put into a wound, as they prevent union by the first intention, which is a great object to effect. A large compress confined with a bandage, when the bleeding is from a number of small vessels over an extended surface, is generally effectual. When a large artery passing over a bone is wounded, a compress in the form of a cone inverted, made of cork, linen, &c. and tightly bound on, with its apex exactly on the orifice of the wound, is often successful. The object in this case is, to completely obstruct the circulation, and obliterate the wounded vessel, without impeding the circulation of the other vessels of the limb.

The *actual cautery* is now seldom employed for suppressing hemorrhage, except in bleedings in the mouth and throat. It should be applied very hot, and conveyed through a canula.

Caustics are very injudicious remedies, and *styptics* are only proper when applied to extensive and diseased surfaces. When compression fails, the artery must be exposed and tied.

Of the ligature.—This is a certain remedy when the vessel is accessible. Dr. Jones says, (see his work on Hemorrhage) that in tying a vessel, the ligature should be drawn quite tight, as that cuts through

the inner coats of the artery. This rupture of the inner coats causes inflammation, effusion of lymph, and an agglutination of the sides of the vessel by adhesive process. The vessel is best taken hold of by a tenaculum, but should be drawn out from its connexions as little as possible, and the ligature be applied exactly in a circular direction, as it lessens the danger of its slipping off, and care should be taken not to include any of the adjacent substances. If the vessel be large, a ligature above and below the wound is proper to prevent bleeding from anastomosis. Sometimes it is necessary to tie the artery above the wound, when it cannot be reached at the wounded part.

WOUNDS OF THE ABDOMEN.—These are of two kinds : 1st *superficial*, which require the general treatment of wounds ; and 2d, *internal*, or those which penetrate the cavity of the peritoneum.

Of the second kind.—A narrow oblique wound may penetrate the cavity without any visible indication of it. In such cases it should be treated as a superficial wound, and no dilating with tents, &c. should be employed, when a cure by adhesion will often follow. But when any of the viscera protrude, or any of their contents, or a profuse hemorrhage, (not in the direction of the epigastric artery) issues from the wound, or blood is vomited, or passes from the rectum or with the urine, we may be assured that the abdominal cavity has been opened and the viscera injured. It is not always, however, that the viscera are wounded, even when deep stabs have been received, as the parts will often glide before the weapon inflicting the injury, and be preserved ; nor indeed even when some of the viscera are wounded, is the event always attended by severe effects. Some wounds, however, which merely pierce the peritoneum have violent symptoms, but this rather depends upon the state of the habit, and not by the admission of air, as many suppose, for indeed the abdominal cavity is so occupied, that but little space is left for its entrance.

The *constitutional symptoms* of wounded viscera are, a small, feeble, contracted pulse ; pallid countenance, coldness of the extremities, great and sudden prostration of strength, licecough, vomiting, spasms, tension of the abdomen. Some of these symptoms, however, may occur in irritable and timid subjects without any important injury, but they soon go off.

Treatment.—When a portion of any viscera is protruded, and not wounded or actually in a state of mortification, it is to be reduced immediately, taking care in so doing that it does not slip between the abdominal muscles instead of entering the proper cavity. The rectum should be previously emptied with a clyster, and the abdomen relaxed by elevating the knees, as practised in reducing hernia. Sometimes the protruded portion is strictured, when the stricture must be dilated, care,

however, being taken to dilate no more than is necessary, as hernia would be apt to follow ; the dilatation should be made in the direction of the muscular fibres, always taking the precaution to avoid the epigastric artery. Puncturing a protruded intestine to diminish its size is bad practice. If the part be really in a state of mortification, it must be left to slough, as in similar cases of hernia ; but should it feel firm, it may be returned, although it may have assumed a dark colour, for the reduction is always followed by a mitigation of constitutional symptoms.

The *constitutional treatment*, in all cases, consists in bleeding largely and repeatedly, notwithstanding the pulse may be weak, and general depression existing ; the bowels to be kept free with clysters, and every possible antiphlogistic means adopted to keep down inflammation. The diet should be of the very lightest kind, and small in quantity ; indeed when the stomach or small intestines are wounded, we had better give the necessary sustenance for a few days in the form of nutritious clysters, allaying thirst by putting a small piece of ice in the mouth, or a rag frequently dipped in cold water.

In **WOUNDS OF THE INTESTINES**, besides the before enumerated symptoms, a fetid air issues, and the bowel, if protruded, appears shrunk and collapsed ; the wound also may be visible.

In the *treatment* of wounds in the intestines, three modes are adopted, according to the circumstances of the case, viz : 1st, to unite the breach of continuity in the bowel by suture ; 2d, to employ general means, and leave the rest to nature ; 3d, to endeavour to form an artificial anus.

A suture can only be applied when the wounded gut is at or near the external wound, and then it is not used altogether with a view to cause the union of the parts, but merely to keep it near the external opening, to favour the discharge of fecal matter, pus, &c. for adhesions, in a few hours, take place to all the surrounding substances, thus encasing the wounded part and preventing farther extravasation. If the wound be distant from the orifice, or if it be not discerned immediately after the accident, no suture should be used ; for in one case it would be dangerous to enlarge the wound or draw out the gut, and in the other, adhesions will have already fixed the parts. Nothing then, in this case, remains to be done, but bleeding and using the general means to avert inflammation. If the wounded part be closely in contact with the external aperture, no suture will even then be necessary. If the part protruded be wounded, it should be sewed up with a ligature, and reduced, leaving the ends hanging from the aperture.

If the wound be small, one stitch is sufficient, and four will suffice even if there be a total division of the gut ; some authors indeed advise that no stitch be used if the wound should not exceed the ordinary size of a goose-quill.

If only one end of the divided gut protrudes at the wound, the urgency of the case seems to demand that the wound should be dilated in search of the other ; for if the upper end be missing, certain death must follow the discharges of its contents into the abdomen, and if the lower portion be missing, the patient can only survive with the loathsome affliction of an artificial anus. If we are successful in finding the missing portion, it is to be brought to the wound. If, however, it cannot be found, and the end protruding be the upper one, we may save the patient's life by uniting it to the edge of the wound by a fine suture, when it will soon be permanently fixed by adhesions, and henceforward the feces must be there evacuated. Previously, however, to this, we should give the patient some fluid, and wait to see if that pass out of the wound, in order to be sure that we have the upper portion. The suture should be of silk or fine thread, and a fine round needle be used, and the threads of the suture cut away about the fifth day. The patient should maintain a recumbent position, with the wound depending. The constitutional treatment may be the same as in other cases. If the case terminate favourably, the intestine at the wounded part undergoes contraction ; this renders it proper that the patient should avoid costive-ness and flatulent food.

Gun-shot wounds are seldom attended with protrusion of the bowels. General treatment only is necessary, leaving open the external aperture so long as fecal matter is discharged from it. Trusses in all cases should afterwards be worn to prevent hernia.

Of extravasation into the abdomen.—This occurs when blood-vessels or any viscus has been wounded, though it does not always proceed to a great amount, owing to the confined state of the viscera, and the early adhesions thrown out around the wound, unless the patient has undergone much motion. If blood be extravasated in any quantity, it produces the following symptoms : 1st, paleness, faintness, sinking of the pulse, and swooning ; 2d, swelling of the abdomen, and sundry inconveniences produced by pressure ; 3d, pain, spasms, fever, inflammation, hiccough, vomiting, difficulty of breathing, suppuration or gangrene. Extravasated bile, urine, or the contents of the stomach and bowels, produce all the effects of irritation in a higher and more rapid degree.

Treatment.—A bandage should be applied about the abdomen, to prevent, as far as possible, any motion of the viscera. If hemorrhage is supposed to be still going on, we should apply cold water to the abdomen. It is advisable to evacuate the effused fluid by the wound if possible, by pressing away the internal parts from the orifice, with a probe, and the wound may in some cases be enlarged for this purpose. If fluctuation be distinct, and the fluid cannot be evacuated at the wound, it is proper

to puncture with a trochar, but if the extravasated matter be feces or coagulated blood, an opening should be made with a scalpel.

WOUNDS OF THE NECK.—Superficial wounds require common treatment. Persons attempting to commit suicide usually make the cut too high to injure the important parts. Air and fluids pass out of the wound if it extend sufficiently deep. If the carotid artery be wounded, it should be immediately tied, taking care not to include the *per vagum*, or eighth pair of nerves. Should the internal jugular be cut, a fatal hemorrhage may ensue; pressure should then be made above the wounded part until it can be reached, and a ligature applied; small wounds may be healed by compression. The external wound should be united by the interrupted suture. If the trachea has received a punctured wound, emphysema will be produced. If it be a transverse incised wound, air rushes out, and there is a loss of voice. Sutures should be employed, but not carried through the trachea, but only into the substance of the cartilage, or the membrane covering it. The cough and inflammation may be kept down by bleeding, purging, and very low diet. Small wounds do not require a suture; neither do gun-shot wounds.

WOUNDS OF THE OS HYOIDES usually penetrate the mouth, and are attended with hemorrhage, passage of air, food, &c. through the aperture.

WOUNDS OF THE LARYNX produce much irritation and convulsive cough.

WOUNDS OF THE THYROID CARTILAGE usually heal favourably. The danger is greatly increased if the nerves or blood-vessels be injured.

If the *œsophagus* be totally divided, the case may be considered fatal; and even if partially so, the danger is always great. Punctured wounds, however, may terminate favourably. Sutures are never used upon the *œsophagus*, but if the trachea be divided they may be applied upon that, which will approximate the wound of the other. Food and medicine should be injected into the stomach by means of a hollow bougie passed through the nose into the stomach. This plan may be adopted in injuries of the neck generally.

In wounds of all these parts, the integuments are to be united with sutures and adhesive plaster, keeping the patient on his back with his chin immoveably fixed down upon the sternum. Active bleedings, purgings, &c. with the rigorous adoption of the antiphlogistic regimen. The mouth may be kept cool by a piece of ice, or cloth dipped in cold water.

WOUNDS OF THE THORAX.—Superficial wounds require only common treatment. Stabs and gun-shot wounds are most frequent in this cavity, the common indication of which is, rushing of air in and out

of the aperture, though this is not always the case, from the smallness of the opening, adhesions of the pleura, &c. The most urgent symptom is emphysema. If blood be immediately coughed up upon the receipt of an injury, and blood, mucus, and air issue from the wound, the lungs are certainly injured, and the result proves fatal, (more especially if the wound be in large vessels at the root of the lungs,) by extravasation into the pleura, or large branches of the bronchiæ, producing suffocation. Peripneumony and suppuration also are among the dangerous consequences.

Treatment.—If not immediately fatal, our only indication is to bleed most liberally, apply leeches externally, and adopt the antiphlogistic plan. The patient should be enjoined not to talk, or breathe with any fulness, and the cough be appeased by every possible means. The dressings to be entirely superficial. If there should be, on receipt of the injury, feeble respiration, small pulse, coldness of the extremities, and swooning, bleeding must be deferred until reaction takes place, and opium given in the mean time. Adhesion in a few days takes place between the pleura costalis and the circumference of the wound, which prevents any farther passage of air or pus. It is said that the substance of the lungs sometimes becomes emphysematous; the air escapes from the air vessels into the interstitial cellular texture, so that the former are compressed, and the patient dies suffocated.

Extravasation into the Thorax.—This is liable to happen in all cases in which the lungs, the intercostal, or internal mammary arteries are wounded. *Symptoms.*—Difficult and frequently interrupted respiration; inability to stand or sit up, owing to the pressure of the fluid upon the diaphragm, the most easy posture being on the affected side; paleness of countenance; coldness of the extremities; clammy perspiration.

Treatment.—This is a very urgent case; the patient is not only in danger of dying from hemorrhage, but of suffocation; the latter may be relieved by paracentesis, but then we are drawing away the blood which might otherwise by its pressure favour the formation of coagulum. If the symptoms be not excessive, it may be better to wait; for, after a day or two, the danger of farther hemorrhage will cease. When paracentesis be resolved on, it is to be practised, 1st, by putting the patient in a posture favourable to the exit of the blood from the wound, if it be large, direct in its course, or if the blood be in a fluid state. 2d, by enlarging the wound if necessary. 3d, by injecting warm water gently every day, until it returns untinged, if the blood be coagulated. 4th, by making a counter opening in a depending situation when the wound is narrow, in a fleshy part, or at the upper part of the thorax. Extracting the fluid by syringe is now but little practised.

WOUNDS OF HEAD.—See *Head*.

WOUNDS, GUNSHOT.—These are produced either by bullets or large shot, pieces of shells, splinters, &c. striking any part of the body, often entering and carrying with them pieces of the clothes. Large irregular bodies produce greater mischief than small round ones: their wounds are always attended with contusion and laceration, and the fibres around the wound are dead, and must, in most cases, be thrown off in the form of slough. It is on this account that they bleed but little, and do not heal by adhesive inflammation. The extent of the injury is seldom at first ascertained, but in eight or ten days the dead parts separate, when there is often dangerous hemorrhage from vessels, or discharge of the contents of some viscus.

If the ball have passed with little velocity, so as to leave time to separate the fibres, the injury is less than when it passes tearing and dividing them. The opening where the ball enters is small and depressed, while the aperture of its exit is larger and elevated.

If the velocity be great, the wound is more likely to be straight. When a ball injures unimportant parts, it is called a simple or flesh wound; but if it fracture a bone, wound a large artery or any viscus, it is called compound, the danger being much greater. The form, force, and direction of the shot, the position and structure of the parts resisting, influence its course through the body. Every new resistance a shot meets in the body, lessens its momentum, and changes its direction, particularly if it strike obliquely. Thus a shot entering at one side of the head, has made its exit at the opposite, having passed around under the scalp without injury to the skull. Violent bruises, and even comminution of bone and muscle, when the skin remains entire, have erroneously been imputed to the wind of a passing ball, while in reality the mischief is produced by the ball being nearly spent, and falling by its mechanical weight, or striking the part very obliquely. The injury, thus received, produces, oftentimes, extensive mortification, and even instant death.

Effects of, upon neighbouring parts and the system.—If the concussion produced by a ball striking a bone be slight, the effect is confined to the parts injured. Sometimes the shock extends to the nearest joint, producing inflammation and suppuration. If a limb be torn off with a cannon ball, there is sometimes an instantaneous loss of the senses, shiverings, sudden yellowness of skin, swooning, incapacity to move, (which are deemed omens of a fatal kind) and various anomalous symptoms: the injured part too, in many instances, is affected with a remarkable degree of heaviness and weakness, which alarmingly portend a tendency to gangrene.

Treatment.—"When a bone, especially at the joint, is shattered into numerous fragments; when the soft parts are, at the same time, exten-

sively lacerated, with injury of important blood-vessels and nerves; and when the whole limb is thrown into a cold insensible condition by the violence of the shock, no resource is so safe as amputation; and delay under such circumstances, would lead to almost certain death." But below this violent pitch of injury there are several inferior degrees, in which the soundest judgment is necessary to decide whether to amputate or preserve the limb. In such cases we are to take into view the patient's constitution, his accommodations, attendance, air, &c. As in compound fracture, there are two periods when amputation may be performed: 1st, within two or three hours after the accident, before inflammation and swelling take place; and 2d, when, after some days the swelling and inflammation have abated, and a free suppuration is set up, the patient having yet adequate strength. Opinion has been much divided as to which of those periods is most proper for the operation; modern surgeons, however, are in favour of the former, particularly in the army; for the removal of the wounded in waggons, from the spiculae of splintered bones still lacerating the wound, increases the mischief. The foregoing remarks apply to a stump when a limb has been torn off by a cannon ball. It is certainly better when the bone is much splintered, to amputate, as it makes a clean, even, incised wound, whilst the extraction of splinters, the incisions into subsequent abscesses, and extensive suppuration, will do equal violence to the constitution. If the injury happen near to, or extend into a joint, it will be proper to amputate above it. When the upper part of the os humeri is fractured by a musket ball, the limb may be frequently saved by making an incision down the centre of the deltoid muscle, and extracting it. Anchylosis in some cases, in others an artificial joint, may follow. The old practice of dilating wounds, except to reach some wounded artery, or to extract some irritating extraneous body, is equally improper with frequent probing. If the wound be such as not to require amputation, the surgeon should first extract foreign bodies, which are for the most part the ball, pieces of the clothes, or splinters of bone. If a ball have entered deep, it is not to be much sought for, as it will frequently remain imbedded in the muscles, cavities, soft spongy parts of bone, &c.; when it has entered one side, and can be felt on the other near the skin, it should not be extracted by a counter opening, unless the parts are so much injured as to render sloughing certain. When a ball is extracted, the fingers or small forceps are the best instruments, and all extraneous bodies should be removed when near the surface of the wound, as they tend to produce much irritation, or cause hemorrhage. Should any violent hemorrhage exist, the vessel must be laid bare and tied immediately. The limb is then to be laid on a splint, having on it a thick pad, and an eighteen-

tailed bandage ; the wound dressed with dry lint and a pledget of common cerate.

If the patient be young and strong, and has suffered little hemorrhage, bleeding will be proper, unless in cases of torpor, as before mentioned ; then wine and cordials will be necessary, deferring the bleeding until reaction takes place. After the inflammation has commenced, leeches, cold lotions, purges, and the usual remedies for inflammation ; and poultices and fomentations, together with opium, if the pain be severe. Should mortification follow, the proper treatment must be resorted to. If the slough be thrown off, it becomes a common ulcer. But the suppuration is great, and a sanies is discharged, followed by hectic symptoms. "Here the utmost judgment is often required to decide whether the attempt to save the limb should be continued, or amputation be performed without delay."—See Hunter "on the Blood ;" Jones on Hemorrhage ; the works of J. and C. Bell, and A. and S. Cooper ; Travers on "Injuries of the Intestines ;" Hennen's "Military Surgery ;" Sabatier's "Médecine Opérative ;" Hunter and Guthrie on Gun-shot Wounds ; and Larrey's "Military Surgery."

YAWS, (*Frambæsia*.)—A cutaneous and contagious disease, common among the negroes of Africa and the West Indies.—See *Frambæsia*, under the head of *Cutaneous Diseases*.

YELLOW FEVER.—See *Fevers*.

ZEDOARY ROOT, (*Zedoaria Radix*.)—From the amomum zedoaria, a tree of the class monandria, and order monogynia ; stimulant and carminative, and employed in hysteria and flatulent colic ; dose, ʒi to ʒi of the powder.

ZINC, (*Zincum*.)—See *Metals*.

ZONA, or Zoster, (from *ζώνη*, to surround.)—Commonly called the shingles ; a herpetic disease that surrounds the body like a girdle.—See *Cutaneous Diseases*.

APPENDIX.

SINCE the article on Spasmodic or Asiatic Cholera in this work was printed, the rapid progress of that disease on the European continent, and its subsequent invasion of the western hemisphere, renders a more detailed examination into its history, causes, and symptoms, as well as into the propriety of its treatment, not only interesting but important. We have experienced one visitation from this dreadful scourge, and we are scarcely warranted in anticipating a future exemption; the more, therefore, that we investigate the circumstances that attend it, the physical incidents that have usually preceded and accompanied it, or that have followed in its train, the better calculated are we to provide against the calamity it entails, and the more likely are our endeavours in curbing its violence or restraining its career to be attended with success. The lessons conveyed by the past are before us, and we are culpably unwise if we do not profit by them in caring for the future. We have already briefly alluded to the extension of this disease from Asia to Europe, and described its occurrence in the Russian empire, from whence it was so soon to travel over the greater portion of Europe; but we will now venture upon a narrative of its entire course, from the earliest records of its existence to the present time.

A tradition is current in Hindostan, among the Brahmins, that a disease bearing all the distinctive characters of cholera was prevalent at a very remote period, and numerous instances of its destructive violence over large tracts of country, are described by these historians. At a later date, the Jesuits, who visited the eastern peninsula, in the exercise of their vocation upon the sick, alluded to a range of symptoms distinguishing a most destructive malady, that were identical with those that have been remarked in the disease under review. One of the earliest notices strictly inviting the attention of the medical reader, occurs in the proceedings of the Madras Medical Board, in 1787, descriptive of a disease "that prevailed in the October of that year, in

Arcot, similar to an endemic that raged among the natives about Paliconda, in the Anibore valley, in 1769-1770 ; in an army of observation in January 1783, and in the Bengal detachment at Gaujan in 1781, &c. as well as to an epidemic over the whole coast in 1783, under the appearance of dysentery or cholera morbus, but attended with spasms at the præcordia, and sudden prostration of strength, as characteristic marks, &c." Previously to the dissemination of this report, the opinions of the faculty were at variance on the subject, and the title of cholera morbus was applied to other diseases that bore but a slight affinity to its general character. From the time above mentioned, the cholera continued its ravages on the plains of India, and the medical officers attached to the British army, in particular, recorded its history and progress ; the medical boards at the presidencies of Bengal and Bombay likewise assisted in its investigation, and published luminous reports upon the nature of its symptoms, and the manner of its treatment. Thus the disease continued in India to engage the attention of the European observer, who however regarded the danger as peculiar to India, and scarcely admitted the possibility of its appearance beyond Hindostan. The cholera that has been so fatally distinguished from each former visitant, by its power of extension, commenced with extraordinary violence, and has since been dreadfully consistent in its career. It commenced in 1817, and first attracted especial attention on its breaking out at Jessore, a large and populous town, about sixty-two miles east of Calcutta. As early as July, it appeared at Sunergong, and even had begun to prevail epidemically in the distant provinces of Behar and Dacca ; on the 11th of the month it broke out in the city of Patna, three hundred miles north-west of Calcutta, and spread to the contiguous station of Dinapore, and to the adjacent villages ; early in August, and by the middle of the month, it appeared in the remote province of Silhet. On the 23d of August it was raging at Chittagong, far round the eastern corner of the bay of Bengal, at the same moment in Rajshaky, a central district lying east of the Ganges, and not a week afterwards in the high and distant tracts of Bhaugulpore and Monghyr. On the 28th of August, it was reported to the government that a malignant species of cholera had appeared at Jessore, and was cutting off from twenty to thirty persons daily. The exact date of the appearance of the disease in Calcutta has not been ascertained, but there appears no doubt that many cases occurred among the native population as early as the middle of August. On the 5th of September, the disease appeared among the European inhabitants, and on the 15th, an official notification of the existence of cholera in Calcutta was forwarded to the government. By the latter end of September, the disease was prevailing throughout the whole province of Bengal, from the most easterly limits of Purnea,

Dinagapore, and Silhet, to the extreme borders of Balasore and Cuttack; and from the mouth of the Ganges, nearly to the confluence of that river with the Jumna, a space of upwards of four hundred miles in length and breadth. In this area of several thousand miles, few places escaped the invasion, and the cities of Dacca and Patna, the towns of Balasore, Burrissaul, Rungpore, and Malda, suffered severely. The large and populous city of Mooshedabad, which, from extent and local position was apparently favourably circumstanced for the attacks of the epidemic, it is remarkable, escaped with comparatively little loss, whilst all around was severely scourged.

During the autumn of 1817, the disease extended itself to Muzufferpore, and beyond the precincts of Bengal, and appeared at Chuprah, and at the cantonment of Ghazee-pore; its attacks in these places were, however, confined to the towns themselves, or villages in their immediate vicinity; the principal portion of the adjoining country, at this period, entirely escaping the disease. Early in November, it attacked the grand army, then stationed at Bundelcund, a portion of the Allahabad province. This army had been assembled in anticipation of a war with the Pindarees, and the centre division consisting of ten thousand fighting men, and eighty thousand camp followers, was encamped on the banks of the Sinde, under the immediate command of the marquis of Hastings. Here the cholera exercised its most destructive power. It is uncertain whether it made its first approaches on the 6th, 7th, or 8th of the month. Old and young, European and native, fighting men and camp followers, were alike subject to its attacks, and all equally sunk in a few hours under its pestilential influence. It was a common occurrence for sentries to be suddenly seized at their posts, and having been carried in, to have two or three successors before the two-hours' duty was performed. Many of the sick died before reaching the hospitals; and even their comrades, whilst bearing them from out-posts to medical aid, sunk themselves suddenly seized with the disorder. The mortality at length became so great that there was neither time nor hands to carry off the bodies, which were thrown into the neighbouring ravines, or hastily committed to the earth on the spots where they had expired, and even round the walls of the officers' tents. In the five days included between the 15th and 20th of November, the number of deaths amounted to five thousand. The natives, thinking their only safety lay in flight, deserted in great numbers; and the highways and fields for many miles round were strewed with the bodies of those who had left the camp with the disease upon them, and speedily sank under its exhausting influence. The camp being now cumbered with the sick, the marquis of Hastings determined to seek a purer air for the recovery of his sick. The exact mortality could not be ascertained; but it

appears that of the fighting men, seven hundred and sixty-four fell victims ; and it was estimated that about eight thousand camp followers, or one tenth of the whole, were cut off. On arriving at the high and dry banks of the Betway, at Erich, the army soon got rid of the pestilence, and met with returning health.

During December, the disease appears to have every where abated, and in January of 1818, to have become nearly extinct. Towards the latter end of February it however revived with great force, and before the close of the year, the whole peninsula of India, from Silhet on the east to Bombay on the west, and from Deyrah on the north to capo Comorin on the south, had suffered from its ravages.

Between the islands of Ceylon and that of Mauritius, an ocean of fifteen hundred miles intervenes, which did not prove an efficient safeguard from the epidemic. In November, 1819, it broke out at Mauritius, and two months later, in the isle of Bourbon, a short distance from the former. Following it next, in an eastern direction from the province of Bengal, we find that in 1818 it appeared in Arracan ; in 1819, at Penang, Bankok, Achcem in Sumatra, and at Samarang in Java ; at Manilla, Canton, &c. in 1820, and in 1821 it broke out in Pekin, where it prevailed during that and the two following years. By the latter end of 1823, it had pervaded the Molucca or Spice islands, including the isle of Timor, near New Holland, where it appears to have attained its south-eastern limits.

In its extension to the westward, the pestilence reached the island of Bombay in August, 1818. In June, 1821, it appeared at Muscat, and subsequently visited the seaport towns on either side of the Persian gulf. Extending inland, it spread from Busheer through Persia, and from Bassora through Asiatic Turkey. In its latter route, it reached Bagdad in 1821, Mosul, Tauris, &c. in 1822, and before the autumn of 1823, it had extended to Antioch, Diarbeck, Erzeroum, &c. threatening on the one hand to extend through Turkey into Europe, and on the other through Arabia into Egypt ; it suddenly, however, stopped in its course, and at that time proceeded no further in those directions.

The first place of note that suffered in Persia was Shiraz, where it broke out about the middle of September, 1821. Passing over Ispahan, the disease next appeared at Yezd, but in October it broke out in the former city, where its ravages were soon arrested by the cold season. The following spring, however, it revived with renewed force, and by the close of 1822, almost every place of note in Persia had been ravaged by the pestilence, and during the following year the few places that had hitherto escaped, were visited. In August, 1823, the province of Shirvan was invaded, and subsequently Baku and other ports on the western border of the Caspian sea. Finally, in September it broke out at

Astracan, near the mouth of the Volga, and threatened Europe also in this direction ; but after prevailing until the rigour of winter, it here likewise died away, and relieved Europe for the time from the impending danger.

We have but little knowledge of the history of the pestilence during the succeeding six years. It is known to have re-appeared in different parts of Persia for several years in succession, as was usually the case where it had once prevailed ; and it is also said to have ravaged for some years the interior of China, and to have passed to the north of the great wall and desolated several places in Mongolia, by 1827.

In the summer of 1829, the pestilence however appears all at once to have gained renewed force, prevailing with great violence in several parts of eastern Persia, more especially in the province of Khorazan, and in various districts of Bucharia, particularly in Chirza, a city in the province of Kharazm, situated on the Jihon, a stream which falls from the south into the sea of Aral, and where some of the Bucharian caravans assemble previous to crossing the great Steppes of the Kirghis-Kaisaks. In August the disease appeared at Orenburg, the capital of the province of the same name, situated on the Tartar frontiers, four hundred miles north of the Caspian. From the official reports, it appears, that the first well-ascertained case of cholera at Orenburg, occurred on the 26th of August ; a week afterwards a woman died suddenly, it was supposed from the same disease, and on the 8th of September, a joiner died, after twelve hours illness. This last was unquestionably a case of cholera. On the 9th, two more cases occurred ; on the 10th, two more ; and after this it became rapidly prevalent. By the 20th of November it had entirely ceased. Out of a population of eleven thousand, eleven hundred were affected, of whom only two hundred died. No cases appear to have occurred in any other part of the Orenburg government until the 23d of September, when it broke out at the fortress of Rasupna, sixty miles west of Orenburg. On the 30th, cases occurred at Berdsk, a small station, twelve miles north of Orenburg, and by the middle of November it had spread over a district of country of about two hundred miles square. From this period the disease abated, and by the latter part of February, 1830, was entirely extinct in the Russian dominions.

The following summer, however, it re-appeared in a different quarter of the empire, viz. on the Persian frontier of Georgia. It has been ascertained that the disease prevailed in June in various places in the Persian province of Ghilan, and among others at Reschd, a sea-port town on the southern shores of the Caspian. From this it extended itself northward, along the western border of the Caspian, to Baku, another port, two hundred miles from Reschd, which it reached early

in July, and north-westerly along the river Kur to Tiflis, the capital of Georgia, four hundred miles from Reschd, where it arrived on the 27th of July. In this latter city, it attacked, in ten days, five hundred and seventy-nine persons, of whom two hundred and thirty-seven perished. From Baku, the disease proceeded along the Caspian, attacking various ports and adjacent towns, and on the 19th of July reached Astracan, a town situated on an island in the principal mouth of the Volga, about thirty miles from the northern shore of the Caspian, and three hundred and fifty from Baku. Here in ten days twelve hundred and twenty-nine persons were seized, of whom four hundred and thirty-three died. From Astracan it is represented as having spread along the Volga, reaching Taritzin, two hundred and twenty miles from Astracan, by the 4th of August, and Saratov, two hundred miles further north, on the 6th of the same month. Spreading west between Taritzin and Saratov, it invaded the country of the Don Kossacks, and extended to the government of Kiev, five hundred miles west of the Volga. In its progress north, it spread across the country to Perza, one hundred and forty miles from Saratov, where it arrived on the 17th of August; on the 27th, it appeared at Samarov, a town on the Volga, two hundred miles north-east of Saratov; and by the latter end of the month it reached Nischnei-Novogorod. On the 9th of September it broke out at Kasan, two hundred miles *down* the Volga, and east of Nischnei-Novogorod, and about the same time at Kostroma, one hundred and fifty miles *up* the river, and north-west of Nischnei-Novogorod; about the middle of September it broke out in Moscow, two hundred and sixty miles from and a little to the south of Nischnei-Novogorod, and about the same time reached Twer and Vologda, not far from the sources of the Volga, thus traversing a distance from the Caspian of at least fifteen hundred miles in three months and a half.

In Russia, the disease observed the same laws that had marked its progress in India and in other countries. Adhering for some time to the route of navigable rivers and high roads, it ascended the Volga to where that river approaches the Don, where a branch took an overland course, and diverged up and down the river. On the Volga, Tsaritzin, Saratov, and Novogorod, were invaded in the month of August; Kostroma, Jaraslaw, and Moscow, in September; Samara, Sinbirsk, Kasan, and Vladimir, in October. It appears that the unclean habits and thick clothing of the Russians materially affected and almost neutralized the beneficial influence of the winter. In the summer of 1831, the progress of the pestilence had been exceedingly extensive; it proceeded in two branches, the one from Vologda, on the Dwina river, to Archangel; the other accompanied the Russian troops to the invasion of Poland. In April, it commenced its ravages in Warsaw, reaching Dantzic and

Riga in May, and St. Petersburg in June. It reached Berlin on the 31st of August; while the Jassy and Bucharest branch was travelling to Vienna, where it declared itself in September; and in a very short time afterwards the disease had reached Altona and Hamburg. (The Syrio-Egyptian branch had also broken out with renewed fury. At Cairo, from the 19th of August to the 1st of September, above nine thousand persons had died.) In the former place, there had been, by the last accounts, (October 25th, 1831,) only thirteen cases; and in Hamburg, since the commencement, only four hundred and forty-five, of which two hundred and thirteen had perished,—a proportion, as at Moscow, of nearly one half. There is every reason to believe, that in more equable climates—in countries where more regard is paid to convenience, cleanliness, and comfort—among people differing in constitution, habits, and manners, as the western Europeans do from the eastern Europeans, and from the Asiatic tribes—the ravages of this fearful malady will be much lessened; and, above all, amidst the charities of social and domestic life, as they are found in our own country, it is likely to prove a far less intractable and fatal disease than it has appeared elsewhere.

The nature of the pestilence is best inferred from a faithful history of the phenomena manifested by it during its progress, and of the changes which it produces in the organization. Among the most remarkable of the former, after its extensive distribution, are the independence which it appears to have of circumstances that generally exert considerable influence on epidemic, contagious, and infectious diseases.

Unlike epidemics, it was not affected by locality; its phenomena were the same at Mascata, in the centre of the arid deserts of Arabia, and at Bussora, amid the marshes of the Euphrates; at Latugie, on the borders of the Mediterranean, and at Kermanshah, in the centre of Persia, one hundred and fifty leagues from any sea. It has attacked, without any diminution in its violence or its character, towns like Kota and Merdine, situated on high hills, far from any marsh, and well ventilated by a dry air; and it has shown itself in others, as at Moussoul, on the Tigris, where the atmosphere is loaded with humidity. It has attacked without distinction the inhabitants of villages or of capitals, the crews of the boats on the Ganges or of the Volga, and those of the ships of the line in the Russian and English fleets. Lastly, it has shown itself under the same forms in pagodas, in caravansaries, in monasteries, in barracks, in prisons, in harems, in tents, and in palaces. It has moved through countries independently of the race of men who inhabited them, and has affected equally the Hindoo, the Chinese, the Mongul, the Turk;—the Slavonian, the Scandinavian, and the Teutonic tribes.

This independence of the hygrometric state of the atmosphere, of climate, and, more or less, of temperature, combined with an almost total indifference to seasons, point out the pestilential cholera as at once differing from all epidemical diseases; while we further find that it is even franked from the conditions of the yellow fever, which allow of its propagation only in the lower *strata* of the atmosphere. The pestilential cholera traversed the plain of Malwa, which has two thousand feet of elevation above the level of the sea; and the plain of Nepal, which, according to Kirkpatrick and Crawford, is five thousand feet above the same level. It penetrated to Erzeroun, a city as lofty as Mexico, (seven thousand feet, Browne); and finally attacked the hermitages on mount Ararat. The proofs against the contagious nature of the disease are equally numerous,—we mean the propagation of the disease by contact,—but with regard to its infectious characters, or the propagation from the atmosphere where the disorder exists, or from the effluvia of a single individual, more doubt prevails.

We must first of all premise, that the existence either of infection or contagion is an inference drawn from the phenomena of disease. If a vapour or gas can be contagious, then the pestilential cholera is so; but not in the restriction which should be given to that term; though in both cases, if the infectious or contagious character of a disease can be deduced from well-attested facts, of the communication of that disease by coming into proximity to, or contact with, a person affected by it, the same fact cannot be disproved; because others have been placed in similar circumstances and have not had the disease. The history of the progress, and the phenomena of propagation, of the pestilential cholera, do not go to show that actual contact is necessary for the communication of the malady; on the contrary, M. Foy, and some of the medical men who visited Warsaw, failed to propagate the malady by inoculation, or by tasting the matters vomited by the affected; and M. Pinel inoculated himself, not only with the blood of a person labouring under pestilential cholera, but also with the mucus of the intestines taken from the body. If, then, this remarkable and malignant disease is neither endemic, that is to say, peculiar to any country; epidemic, prevailing at particular seasons; or contagious, communicated by contact; and yet the phenomena of its origin and progress mark it as propagated by the intercourse of nations and the communication of men, it would appear to be simply infectious, and that apparently not at great distances; and Drs. Russell and Barry, in their latest reports, seem to think, not even infectious from the clothes or apparel of a diseased person; but this is liable to some doubts. Ispahan saved itself by denying entrance to an affected caravan, which took the disease to Yezd; the German colony of Sarepta interrupted all communication, and was not ravaged;

the Franks, having shut themselves up in the towns of Syria which were affected, escaped the malady ; in India, the inhabitants of jails have also been known to escape the pest ; and in the town of Permoki, some prisoners being affected by the disease, a sanitary cordon was placed round the prisons, and the town preserved from infection.

The body may receive infection in several different ways : by food, by the absorbents, or by the respiratory system. The symptoms of the disease, and the pathological appearances of the stomach and intestines, led some to think that they were the seat of the disease ; but this opinion was not supported by a sufficient number of correlative facts to be ever much in vogue. The sudden coldness and clamminess of the surface of the body, from the determination of the blood to the larger organs ; the annihilation of the pulse at the wrist and temples ; the incapability of drawing blood from the superficial veins ; and the obstruction of the exhaling system,—combined with the fact, that the naked races of mankind, the Hindoos, for example, (four millions of whom are said to have fallen victims to the disease,) were most exposed to its attacks,—led others to consider the skin, or the absorbent system, as the first affected by the infection. It is a curious fact, that the arrival of this pestilence at Moscow was preceded by a cloud of little green flies, which darkened the air, and covered persons from head to foot when they entered the street, and which are known in Asia as flies of the plague. These flies have, by some medical men,* been thought to have a considerable influence in propagating the disease. Dr. Hahnemann also supposes the disease to be caused by insects, but which are invisible to the naked eye, and adhere to the hair, skin, and clothes.

The Russian medical men thought, from *post mortem* examinations at Astracan, that polypi were uniformly found on both sides of the spinal marrow ; and the same parasite growths have been found to attend the disease in India, only they occurred at the heart. They cannot, however, claim our attention as connected with the origin of the cholera.

Mr. Kersmann also advanced a theory, founded upon the supposed absence of free acetic acid in the human blood, while a quantity corresponding to the amount lost might be traced in the intestines ; but the existence of acetic acid, at any time, in the human blood, is a new fact, contested by the most celebrated chemists, and liable to very considerable doubts.

It appears much more probable, however, that the coldness of the skin, and loss of vitality in the surface of the body, are secondary symptoms, dependant on the affection of the heart, which is simultaneous

* Neale on Animal Contagion. The Egyptian plague, similarly infectious, is attended by a similar phenomenon.

with that of the organs of digestion and assimilation, and which would appear to result from the introduction of the poison through the medium of the air or the lungs. Pinel proposes for a disease of this character the name of *trispianchnia*, considering it as an infection of the ganglion of the great sympathetic nerve. A writer in the *Foreign Quarterly Review* says, on this subject, "That the vital energy of the nerves distributed to the respiratory, the circulatory, and the secreting organs, is either uncommonly depressed or entirely annihilated, is shown by the uniform and characteristic symptoms constituting the malady." The state of the respiration, the coldness of the expired air, the retraction of the epigastrium, and oppression on the chest, indicate that the collapse and congestion of lungs presented by them soon after death, has actually commenced during life. The diminished action and constant pain of the heart shows an imperfect action of this organ, which is no longer supplied with healthy blood; and this suspension of power is accompanied by a total cessation of all circulating and secreting actions. The organic class of nerves, which forms a sphere of intimate union with each of its parts, supplies the lungs, the heart, and the blood-vessels, and all the digestive, assimilating, and secreting viscera; and when powerfully impressed in any one part, experiences a co-ordinate effect throughout the whole. Hence the sudden stoppage of all the natural secretions; the almost total cessation of circulation; the loss of power in the stomach and intestines; the congestions of the large vessels and the lungs; the sympathetic effects on the brain; and the loss of all voluntary power. The evacuations, and more especially the cramps and convulsions, which are sometimes so powerful as to leave the patient, who died during an access, rolled up like a ball, are efforts of nature to expel what is injurious, and to rally what is sinking, and are connected with this sudden diminution of the vital powers and the congestions of the nervous centres.

The *symptoms* will now be easily understood. They are—*In the head*: a sense of weight, sometimes aching, in the frontal regions. The senses are mostly retained to the last. *In the lungs*: respiration is difficult and laborious, embarrassed with sighs; inspiration interrupted; voice almost lost; countenance full of consternation. *Heart and vascular system*: oppression and pain in the region of the heart; the action of the heart and arteries diminished; no pulse at the wrist or temples; surface of the body and extremities cold; mouth dry. *Stomach*: sensation of great, oftentimes of violent pain at the epigastrium—(the French authors always express it as an atrocious pain!); frequent vomitings, *Intestines and assimilating organs*: the abdomen swells; there is a constant desire to go to stool; pain on pressure; soon a violent ejection of matter, first of all green, then black, but often varying in colour;

deposition of a clayey-like substance, with a white slimy fluid, which is found to line the coats of the intestines ; no bile. The patient sometimes perishes before any re-action commences ; often before all the symptoms are developed, which also undergo some slight variations in particular idiosyncrasies. Re-action shows itself by pricking of the fingers and hands, extending to the wrist and fore arms, to the legs and thighs, and to the lower part of the abdomen and thorax. Internal heat ; hiccough ; cramps of the arms and legs, and of the whole body ; spasms of the stomach and intestines. It is naturally to be supposed, that in a violent pestilential disease of this kind, every function and every organ is more or less sympathetically affected ; thus the eyes are sunk and glossy. (It has been said that a ring could be perceived round them previous to the attacks.) Hemorrhages sometimes supervene at the nose ; hearing is indistinct ; the tinge of the skin is purplish, and the nails are coloured ; the lips are livid ; the eye cannot weep ; all the glandular system appears affected ; no urine is secreted or discharged during the disease. There is trembling of the hands, and total prostration of strength. The examination of bodies which have died of this disease exhibits the appearances which might be expected under these circumstances : congestion of blood in the vital organs, the lungs, the heart, the liver ; ulceration of the coats, and spots in the stomach and intestines ; bile in the gall-bladder ; serous fluids in the ventricles of the brain. The intestines and stomach have also exhibited appearances of acute inflammation.

1. *Symptoms of the incipient stage.*—In an immense majority of instances, diarrhœa has been the prominent symptom of this stage. On examining the discharges, if we have an opportunity of doing so shortly after the occurrence of the diarrhœa, they will be observed to be fecal and bilious, but we shall find that they subsequently bear the serous character of those which occur after the choleric stage is fully formed ; they are passed copiously and without much griping ; the feeling of debility which attends them is great, and this diarrhœa is so exhausting, that we have met with patients, especially those advanced in life, in whom a considerable degree of collapse had occurred, with a feeble pulse, scarcely exceeding fifty, before the accession of vomiting and cramps.

2. *Symptoms of the cold or choleric stage.*—Our description will be more intelligible if we divide into two periods this very important stage.

First period.—The time of invasion has been, as in India, in a great majority of instances, from two to four o'clock in the morning. The patient is attacked with uneasiness of the stomach, occasionally amounting to pain, to which speedily succeeds vomiting of the fluid resembling rice-water ; and, if diarrhœa have preceded, which in almost

all the cases that have fallen under our observation has been the case, a purging of the same fluid, the fecal contents of the canal having been previously expelled. The discharges from the bowels are occasionally scanty, but much more frequently they take place copiously and forcibly. Simultaneously with the vomiting, or not unfrequently before this symptom has occurred, cramps take place, and the agony which attends them constitutes a great part of the sufferings of the patient, who incessantly intreats that friction may be applied to the parts they affect.

Second period.—The mean duration of the preceding period varies from about eight to twelve hours; the vomiting and spasms then either totally subside or recur at much longer intervals, and the patient sinks into a state of extreme collapse. The pulse at the wrist is scarcely or not at all perceptible; the surface is universally moist and cold, excepting as heat is imparted from without, for the instant that the hands or other parts are exposed, they become of an icy coldness; blueness, if it exist at all,—but it is by no means an universal symptom,—is now conspicuous on the face and hands, which last have the shrunk and soddened appearance so generally described; the tongue is moist, and, if not actually cold, at least cooler than natural; and the voice is of that mingled huskiness and feebleness which strikes the ear so peculiarly. In this condition there is little suffering, excepting from the sense of weight and oppression at the præcordia, of which the patient complains much; for even should spasms occur, they are now too feeble to excite much pain; the respiration is slow; the conjunctivæ, especially in their inferior hemisphere, are frequently injected with dark-coloured blood; and the insensibility of the stomach is so great, that the most powerful stimulants may be given and retained, without the organ being apparently more sensible of their presence than if it were a lifeless pouch. The urine is suspended throughout the whole course of a choleric stage so intense as we have described.

3. *Symptoms of the febrile stage.*—The preceding stage, in most instances, makes a very gradual transition into the present one. After the patient has remained in the collapsed state probably for a considerably longer time than the medical attendant expected, some degree of warmth will be found returning to the surface, which for a variable period, perhaps for a couple of days, has been almost of icy coldness; and the pulso is proportionably developed, being very perceptible at the wrist, generally about eighty, and soft; the vessels of the conjunctiva gradually become distended with blood; or if those of the inferior hemisphere have been so during the stage of collapse, the distention now diffuses itself over the whole membrane; the patient, who on his attention being roused is perfectly sensible, complains of severe

pain in the head, of a sense of giddiness, and that the light distresses his eyes. The tongue in this early stage is clean and moist; the bowels are readily acted upon by medicine, and the discharges are feculent, and though somewhat clayey, contain a proportion of bile; but the urinary secretion is sometimes either not restored, or is considerably deficient for a day or two after the establishment of fever. In the progress of the fever, the tongue becomes black, and sordes accumulate about the teeth: the eyes become more and more injected; the intellect more and more torpid, though still the patient can be roused to answer questions, and even may make one or two sensible remarks on his condition; but the instant the conversation ceases, the eyes are turned up in the orbit, exposing through the half-closed eye-lids the red sclerotica, and the patient is in a state of profound stupor: the urinary secretion is now established, and the urine, which at first was dark-coloured and cloudy, is limpid and pale; the alvine discharges are darker coloured than at first; and throughout the disease there is a deficiency of vascular action and of temperature, which we have not observed to the same extent in typhus or any other fever. *Typhoid* is not an appropriate designation of the condition we have endeavoured to describe; but we think that an individual who had once watched the progress of such a case, would run no risk of confounding it on future occasions with typhus;—the deficiency of vascular and calorific power; the peculiar vascularity of the eye; the absence of subsultus and muttering delirium, (for though delirium occasionally occurs during night, the condition of the intellect is throughout much more one of torpor than of irregularity,) would be the marks by which he would discriminate the two affections.

The duration of such a febrile stage as we have described, is from a week to ten days. Its termination has been in a considerable majority of instances, which have fallen under our observation, fatal. The brain has appeared to be the organ mainly affected, and by this view our treatment has been chiefly guided, though at the same time the condition of the intestinal canal has not been neglected.

The mildest and most tractable type of the febrile stage was denoted by symptoms of general but moderate excitement, with epigastric pain on pressure, headache, and giddiness; the tongue being at the same time either clean, with a disposition to become dry and glazed, or slightly white and furred; the skin warm; the pulse free and forcible; the urine high coloured, and the thirst considerable.

3. *Prognosis*.—The danger of the disease is in all cases, we believe, to be estimated from the degree of collapse attending the cold or choleric stage. In India, it was remarked that the cases in which the spasms and vomiting were the most violent were by no means fraught

with the most peril, and what we have seen of the disease enables us to bear testimony to the accuracy of the remark; for when we have heard the attendants exulting in the cessation of the spasms and the facility with which the stomach retained medicine or food, and have felt at the same time the pulseless wrist and the cold and clammy hand, we have seen in these apparently favourable omens only the natural progress of the disease from a bad condition to one still worse. Whether we are to dread a fatal result in the cold or the excited stage, the intensity and duration of the collapse in the former of these stages are the measure of the danger; for if the patient die in this stage, he dies of collapse, and if he survive it and pass into the state of fever, the character of this fever is malignant and dangerous in proportion to the same collapse.

4. *Diagnosis.*—From ordinary cholera the cold stage is to be distinguished, as it appears to us, by the peculiar character of the discharges, which has been sufficiently dwelt upon, and by the degree of collapse and its early occurrence.

There is a certain form of the febrile stage, that which supervenes on a choleric stage, attended with extreme collapse, which the deficiency of the temperature and the circulation, the congested state of the conjunctiva from the very commencement of the fever, and the peculiar torpor of the intellect, would enable, as it appears to us, the observer to discriminate from any fever which we are in the habit of witnessing, provided he saw the patient early and watched him throughout; but in the majority of instances the diagnosis can only be correctly drawn by coupling the preceding history of the case with the existence of fever and with its character.

5. *Appearances on dissection.*—The external appearance of the body closely resembles that which has been noticed during life: the solids are shrunk, the surface is livid, the skin of the hands and feet is corrugated, the nails are blue, and the fingers often rigidly contracted. There is no evidence of any unwonted tendency to putrefaction, nor any characteristic fœtor from the abdominal cavity.

In the *head* are found marks of congestion, and even occasionally of extravasation. The blood-vessels of the brain and its membranes are more or less turgid with blood, particularly towards the base, with a fluid effused into its convolutions, and more or less of serum in the lateral ventricles.

In the *thorax*, the pleura and pericardium are found, as the serous membranes generally are in this disease, perfectly healthy, with the exception occasionally of an unusual dryness. The lungs are sometimes in a natural state, but more frequently gorged with dark-coloured blood,

so as to resemble liver or spleen ; or they have been found collapsed on each side of the spine, leaving the thorax nearly empty.

In the *abdomen*, the vessels of the liver are often much congested, and pour forth blood copiously when incisions are made into the organ ; but this congestion is not uniformly found ; the gall-bladder is turgid with black bile, and its ducts are sometimes constricted and impermeable, though occasionally in an opposite state. The peritoneum is often quite healthy, but the portion investing the alimentary canal has frequently an inflamed appearance, from the exceeding loaded state of its blood-vessels. This congestion is sometimes so great as to give the appearance of gangrene ; but by drawing the finger over the surface, innumerable small veins may be found running in every direction, as in a preparation nicely injected, and the texture is found to be resisting and firm. This portion of the peritoneum, however, occasionally bears marks of actual inflammation, especially if the patient has lingered long before death. It then presents a thickened appearance externally, and its colour varies from a pale vermilion, through all the deeper shades, to a dark purplish hue ; the former being chiefly remarkable on the surface of the duodenum and jejunum, the latter on the ileum where it terminates in the cæcum. At other times, the whole alimentary tube, instead of this congested state, presents a blanched appearance both internally and externally. The omentum is sometimes healthy ; at others, it presents the same appearance of extreme vascularity as the peritoneal surface of the alimentary canal.

The following appearances are discovered on laying open the stomach and intestinal tube. A white, opaque, and viscid substance is found adhering to the surface of some portions of the mucous membrane ; and in many cases it is so abundant in the intestines as completely to fill parts of them to a greater or less extent. The stomach and portions of the intestine are filled with a transparent or turbid serous fluid, and frequently the viscid matter mentioned above is found intimately mixed with the serous fluid, or floating in it in the form of flakes. The mucous membrane, except when inflamed, which it not unfrequently is, has an unnatural whiteness, is often soft and pulpy, and in general—especially in the stomach and small intestines—can be easily detached by scraping, in the form of a thick pulp, from the subjacent coat. These appearances are sometimes more or less partial ; but some of them are generally found throughout the whole extent of the tube. They extend in some cases to the mucous membrane of the bladder and ureters, and have been found in two or three instances in that lining the bronchi.

The *causes* of cholera may be regarded as *predisposing* and *exciting* or *occasional*,

With respect to the former, it is certain, in the first place, that the

natives of India were affected more than Europeans ; secondly, that in its progress from the eastern peninsula, the disease chiefly attacked the lower orders of society ; and thirdly, that it was more frequent and fatal in cities and large towns than elsewhere. In the examination of these circumstances, we find that the Hindoos are generally crowded together in small and filthy huts, accustomed to expose themselves to labour in the hottest time of the day, and to the dews of the night : we find that the poorer inhabitants of the European and American cities are likewise crowded together in unwholesome situations, compelled to work in the heat of the day, inadequately fed, and poorly clad. In addition to these evils, the use of ardent spirits prevails to an enormous extent, giving rise perhaps to a stronger predisposition for cholera than can be found in its native Indian soil. Excessive fatigue, suddenly suppressed perspiration, the existence of a chronic disease, particularly when the viscera are engaged, mental anxiety, and especially fear and a depression of spirits, may all be looked upon as predisposing causes of cholera. Thus in all places where the disease has prevailed, we discover that the filthy and the drunken portion of the population are its first victims, and likewise that those who inhabit crowded dwellings, who are exhausted by watching or fatigue, who live upon a poor and vegetable diet, and who resign themselves to anxiety and terror, rarely escape.

The *exciting* causes are far more difficult to discover. We have seen that in India, cholera prevails during the hottest months of the year, and that a severe visitation has generally been preceded by some peculiar condition of the atmosphere, which has accordingly been regarded as an exciting cause. But, with an inconsistency that appears exclusively the character of cholera, Russia, and in particular, Moscow, was attacked during the depth of winter, and yielded as many victims as were surrendered in other places during the summer months. In one country the disease has followed a rainy season ; in another it has succeeded to a long continued drought ; whilst in a third it has prevailed without any perceptible atmospheric variation. It is again probable, that in Bengal it has appeared in a greater or less extent every year, for a considerable time past, but why it should be so much more fatal in one season than in another ; why, in particular, it should acquire such an intense severity in 1817 ; and also, why it should pass the bounds that had hitherto confined it, are questions no less interesting than intricate, and beyond the skill of medical talent to solve. The extension of cholera to other countries subsequently to 1817, supplied the faculty with a new conjecture as to its exciting cause ; *its contagious quality*. Amongst the medical men of India, who lent themselves with a praiseworthy diligence to the task of discovering the character of the

disease, a majority were opposed to the assumption that cholera was in any way communicated from the sick, or that any miasm was generated capable of producing the disease in others. The advocates of the contagious nature of cholera were however sufficiently numerous to demand attention, and many of their arguments were based upon circumstances too important to be slightly heeded. Previously to the appearance of the disease in Europe, the idea of a specific contagion was not uncommon in the English and American schools, and so clearly was the question stated by some of the Indian writers, that the editor of this work, in his article on cholera, admitted the principle as the most credible of the exciting causes, from the mass offered to his acceptance by the numerous authors upon the subject. A more attentive investigation into the nature and character of the cholera, both as displayed by recent writers upon the subject, and in the course of personal attendance upon the sick during the prevalence of the disease in this city, has however induced him to regard the non-contagious principle as the most just and rational, and the one fortified by the experience of the most eminent practitioners in Europe and on the American continent.

The contagionists have insisted that the many instances of attack amongst the medical officers, students, and nurses, in cholera hospitals, demonstrates the accuracy of their assumption; the circumstance of the progress of several regiments in India through villages in which no disease had before appeared, but which burst out a few days subsequently to the march of the soldiers, was confirmatory of their doctrine; whilst to crown all, a number of facts were brought forward to prove that a single individual who had been attendant upon the sick in an infected district, was after his removal to another and more healthy situation, not only attacked with it himself, but the cause of its appearance in numbers around him. The question of contagion was however narrowed within the limits usually ascribed to that principle by some writers; for instance, it was asserted that the exhalations of the sick are the carriers of the disease, but only so long as they retain their vaporous form, and that the clothes and linen covered with the perspiration of the patients, were incapable of transmitting the contagion.

The anti-contagionists, among whom we may class the larger number of practitioners in every country, appeal to the very small number of individuals in the clerical and medical professions who are attacked in the performance of their duty, when compared with the multitude of both classes who are daily, nay, hourly, exposed to the disease. They moreover regard the sufferers under such circumstances as liable to the operation of the same causes that has induced the malady in others,

and reject the testimony for contagion on this ground, both from its inconclusiveness, and the trifling comparison afforded in its result.

Some philanthropic physicians have moreover exposed themselves in a remarkable manner to the chance of contagion, by wearing the clothes, and reposing in the bed of a patient who had just died of cholera; by the inoculation of themselves, by the blood and excretions of the sick, but without suffering in the least degree from the disease. It is also a well ascertained fact, that in numerous instances cholera has appeared in situations to which no communication could have extended, and even in so late an instance as presented in Canada, it was distinctly proved that although a vessel arrived from Europe with cholera on board, yet that the disease appeared at Quebec before the least communication was established. It may likewise be mentioned as a strong proof that the disease is not contagious, that the sanitary cordons and the measures of quarantine adopted by many of the European governments, were perfectly useless in attempting to restrain its advance; and again, that in some cases an adjacent village to an infected town, or the suburbs of a town, were perfectly healthy, although in the habit of daily communication with the houses in which the disease raged. The course of the cholera has been, upon the whole, more regular than those diseases spreading by means of contagion, having, with a few variations, proceeded from the south-east to the north-west. Contagion, likewise, exciting as a principle, has generally been confined to eruptive fevers, and those having a putrid tendency, and also to that class of disease termed cynanche, and it is not usually developed until some days after an exposure to its action. Cholera, on the contrary, attacks immediately on the individual coming within the sphere of its remote cause, and assumes the character of a nervous depression, not being marked in its commencement, progress, or termination, by any of the circumstances that distinguish contagious disease. The exciting causes of cholera are thus variously considered, as a disease capable of extension by contagion, on the one hand; as an epidemic malady on the other. We perhaps learn little in the endeavour to account for the exciting cause of cholera, by pronouncing it an epidemic, for the laws that govern this principle are too inconsistent and arbitrary to permit description. We know that it exists, that it strides over vast countries, distributing its force unequally, and sometimes altogether withholding it. So of influenza, and so of cholera, both mysterious in their operation, although so varied in their effects. We have already seen how the first action of cholera is displayed, the proximate cause being displayed by the mode of its attack on the vascular, the nervous, and the muscular systems. To sum up the whole of our remarks upon this portion of our subject, we may observe, that the great effect of cholera

is a depression of the organic vital powers, and so much so, as ordinarily to prevent re-action. The supposed *infectious* nature of the disease has been already considered.

The extension of cholera to Paris and London, then through the greater part of England, Ireland, and Scotland, and subsequently to Canada and the United States, has been dwelt upon by a number of writers, who have furnished us with an exact report of the symptoms and nature of the disease. Were we to allude to these reports particularly, we should but repeat a large portion of our former statements and arguments, for cholera, although inconsistent in its mode of attack, is yet consistent in its essentials and in its fatality, and therefore we have learnt but little from recent publications in addition to the knowledge derived from the East India reports. The question of contagion has certainly been canvassed with more judgment, because experience aided the examination; and as in former times, when the cholera was confined to India, a large majority of the medical faculty have pronounced it non-contagious.

The cholera broke out in Quebec on the 8th, and in Montreal on the 9th of June, 1832, and in both places raged with a nearly unexampled fierceness; from these cities it spread to various places, chiefly following the great tributary streams of the St. Lawrence, the Ottawa river and the Richelieu, by which it reached lake Champlain, and eventually arrived in the city of New-York about the end of the same month. The cities of Philadelphia and Baltimore soon participated in the misfortune, while the part of country up the Hudson, and in some situations up the East river, suffered in many instances to a greater comparative extent than the more crowded towns. The route of cholera in this country, since it disappeared from Philadelphia, has been slower than ordinary, requiring some weeks to extend a few miles; it has likewise proved unusually inconsistent, visiting or avoiding localities in its route on the margins of streams, on ridges of mountains, or in the valleys, with an apparent caprice unaccounted for by any circumstances within the observation of man.

At this period, it may still be in existence in some distant territory; but no very alarming manifestation of its power has been displayed since its destructive career at New Orleans, where it suddenly appeared, raged for a few days, and as suddenly ceased. Within the limits prescribed in this work, we cannot enlarge upon the course taken by the cholera on this continent, nor is it necessary, because in the first place, there are numerous works published detailing each step of the disease, with the accompanying occurrences that rendered its advance remarkable; and in the second, from the whole of its history on this continent closely resembling that witnessed in other countries, and to which we

have already sufficiently alluded. We have now but to consider the treatment.

Treatment.—In the earliest stage of cholera, when the premonitory symptoms, as they have been called, are experienced, and which may be shortly named as consisting of diarrhœa, a sense of fulness in the abdomen, and nausea; languor, and a sensation of chilliness and debility, the treatment is sufficiently simple, and when adopted in time, of sufficient service in ridding the system of the germ of a most destructive disease. In the language of Broussais, "This is truly the moment of triumph to the medical man. Go at once," says he, "to your object, cut off the food, apply leeches to the anus if the pain be in the lower part of the abdomen, and to the epigastrium if it be in the stomach." Abstinence, in fact, is the sheet-anchor under such circumstances, disregarding the maxims of those who would stimulate the system into excessive action by the use of brandy and hot astringents, as well as the advice of others who would immediately lower the patient by excessive catharsis, and the indiscriminate use of the lancet. The various, and in many cases, tho absurd directions, given to the public, in the moment of terror, when the cholera was at their doors, has in every country increased the calamity they were intended to resist; the very number of proposed remedies distracted the attention, and diverted the patient from a proper examination of his symptoms, and from the employment of the simple treatment that would have proved available in his cure. When the disease has passed from its warning into its first complete stage, another mode of treatment is altogether necessary.

If there be not a great prostration of strength at the outset, the treatment in the first stage may commence with venesection, carefully watching the pulse, and discontinuing the operation when the first symptoms of faintness appear. When the nausea is great, the stomach should be unloaded of its contents by an emetic, and a table spoonful of mustard seed forms a very efficient one. A laxative of calomel and rhubarb may then be administered, the patient restricted to a diluent diet, and kept within doors and warm.]

In the management of this stage, the treatment must entirely be governed by the symptoms; should feebleness and the slightest tendency to collapse appear, we should act with gentleness, although with decision, and the foregoing measures will generally be sufficient; if, on the contrary, this stage be ushered in by much excitement, we may abstract a much larger portion of blood, at the same time applying leeches to the anus or epigastrium, as circumstances may dictate. Should any degree of tenderness be complained of on pressure of the abdomen, a large blister should be applied to the part without delay.

Of the second stage.—This, which may be termed the cold or choleric

stage, is one requiring the utmost judgment of the physician. With respect to blood-letting, it may be observed, that so long as the temperature is not below or but little below the healthy standard, so long as the pulse beats with tolerable force, and strong spasms recur at short intervals, *provided collapse have not preceded this condition*, we should at once open a vein, and withdraw as much blood as the system can afford to part with without a manifest depression. We may thus prevent both collapse and congestion. But, when collapse is either established, or when a condition of returning power is succeeding to collapse, as exemplified in a few instances, blood-letting must be carefully abstained from. The practice would be absurd in a case of collapse, and subsequently it would lower the vital energies which are then freeing themselves from oppression. But again in a more advanced period of this stage, the lancet may be required, when the constitution is no longer balanced between collapse and fever, but when in fact the latter has triumphed. Thus there are three periods when venesection may be practised: in the commencement of the first stage, in the commencement and at the termination of the second, when the feverish or third stage, as will be subsequently noticed, commences.

If, after bleeding, in this the second stage, we find a circulation of moderate force, and at the same time a pain in the epigastric region, on pressure, which is a frequent symptom in those cases where the evidence of collapse is the weakest, a large blister or sinapism may be placed on the abdomen, and a dose of calomel and opium, in the proportion of ten grains of the former to one and a half or two of the latter, be administered. Should the circulation, however, be feeble, with general or partial deficiency of warmth, we may endeavour to arouse the system by full vomiting, giving for this purpose half an ounce, and in some cases even so much as an ounce of mustard, mixed in a tumbler of warm water. Sinapisms may then be applied on the abdomen, and along the course of the spine, at the same time affording an extra degree of warmth by means of bottles of hot water wrapped in flannels, bags of hot oats, sand, &c. to the extremities, and those parts where the temperature is most deficient. Frictions of the limbs may likewise be performed under the bed-clothes. We have never yet witnessed any beneficial effects from the employment of the oil of turpentine or spirits as stimulating embrocations, and rather apprehend that the coldness produced by their rapid evaporation more than compensates for any benefit they are calculated to effect. After the vomiting from the mustard has ceased, a bolus of calomel, capsicum, and opium, the latter not in a proportion exceeding two grains, may be directed; and should the weakness be excessive, or the tendency to collapse considerable, a weak stimulant, such as brandy and water, or camphorated

spirit, may be given. Where the circulation is tolerably vigorous, and the temperature restored, simple diluents, such as toast and water, will form the most appropriate beverage.

A number of internal stimulants have been proposed for the treatment of this stage, such as mustard, in drachm doses, at intervals of an hour or two, apparently with the design of giving additional vigour to the pulse, which had perhaps been restored by the previous vomiting occasioned by this remedy in a larger dose; of producing a bilious discharge from the bowels, restoring the urinary secretion, and aiding the system in the transition into the febrile stage. The carbonate of ammonia has also been suggested as an useful stimulant, giving it in doses of five grains every hour, with carbonate of magnesia, which renders its retention more easy, should the stomach still continue irritable. The oil of turpentine has likewise been selected as a stimulant, and in some cases with apparent advantage, in doses of two drachms every second hour.

Whatever stimulants be employed, calomel should be administered in five-grain doses, every three or four hours, with the view of aiding the restoration of secretion; continuing the sinapisms to the abdomen and spine, in order to arouse the system into action, as well as to diminish the irritability of the stomach.

There are yet some extraordinary remedies proposed in the treatment of this stage of cholera, by gentlemen of unquestionable skill, independently of a number of nostrums recommended by the charlatans of the day, and on which as we have no faith, we shall waste no space. The inhalation of oxygen gas has been presumed to exert a surprising effect in terminating the condition of collapse, but the experience of many medical observers who have witnessed a trial of this remedy, induces us to believe that the effects are transitory, and that the collapse afterwards becomes more confirmed than before. It may however be said, that although no great benefit has been derived from the inhalation of this gas from bladders, the subject is open for a fair experiment, by placing the patient in a situation where he could breathe diluted oxygen for a considerable period.

The tobacco enema, in collapse, was first suggested by Mr. Baird, of Newcastle, (England) and employed by him with very considerable success; the experience of other medical men has not coincided with his; and in this city, indeed, where it met with a fair trial, it disappointed all the hopes entertained of its effects. Mr. Fyfe, also, of Newcastle, in the period of extreme collapse, threw into the rectum an enema, consisting of two pints of warm water, from four to eight ounces of brandy, and from one to two drachms of laudanum; this he repeated in several cases with perfect success, constantly abridging that state of the disease, on the intensity and duration of which so much of the danger

depends. An enema, containing a drachm of powdered mustard, has also been attended with similar results.

We have now to consider a plan pursued by Dr. Stevens, formerly of Santa Cruz, who acquired a well-earned reputation by his success in the treatment of yellow fever. This gentleman, detecting a resemblance between cholera and certain malignant forms of fever, both as to their phenomena and fatality, concluded that the remedial agents by means of which he had so repeatedly triumphed over the one, might be employed in the conquest of the other. Nor was he deceived in his speculation. In the article of yellow fever, (see *Fever*) we have given a brief sketch of the theory of Dr. Stevens, to which the reader is referred; suffice it to say, in this place, that the treatment was similar in cholera, and consisted of, in the first place, the administration of seidlitz powders, with the intention of lessening the gastric irritation; a sinapism was likewise placed over the epigastric region, frictions employed to relieve the spasms, and heat applied to various parts of the body. The great measure adopted, however, was a powder containing carbonate of soda 3ss, muriate of soda ℥i, and chlorate of potass grs: viij, dissolved in half a tumbler of water, and taken soon after the seidlitz. This powder was repeated according to the exigency of the case, every hour, half hour, or even every fifteen minutes, and continued until the circulation was fairly established; it was then given at longer intervals, and when the re-action was complete, it was left off by degrees. This treatment was assisted by occasional draughts of the common effervescing mixture, containing an excess of alkali; in some instances by the administration of an enema containing muriate of soda, and in very severe cases, by immersing the patients in a warm saline bath, and with evident advantage. A very considerable number of the patients under the care of Dr. Stevens recovered under this proposed plan of treatment.

It is due to Dr. Stevens to state, that the editor of this work pursued nearly a similar plan after his directions, and frequently with decided benefit.

It remains but to notice one more method of treatment applicable to the second stage, that of injection into the veins, of a saline solution. This has been repeatedly tried in various situations, and in this city was put in practice by several ingenious physicians. The results, however, have not been sufficiently encouraging to warrant its repetition.

The excited or febrile stage.—We now approach a topic requiring little argument, for the treatment of this form of cholera closely resembles that demanded by pyrexia in general. We are in fact easily guided by symptoms under the present circumstances. The principal situations of inflammation in this fever, are the brain and the digestive

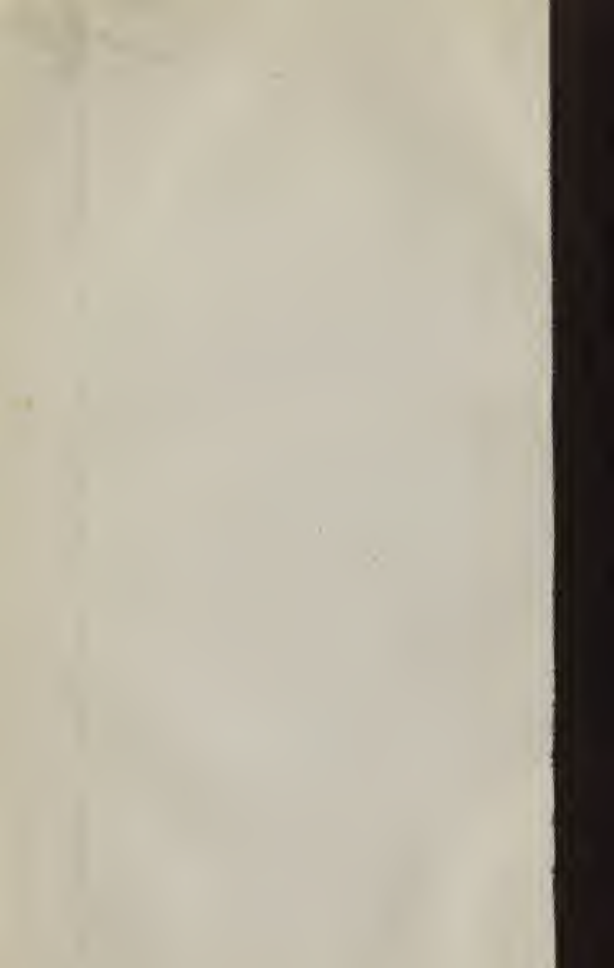
canal, but the type of the fever is low, and of a typhoid character; the vascular action is feeble, the temperature of the surface under the healthy standard, and the distribution of warmth partial. We seldom, therefore, have the option of bleeding from the system generally; but when the brain is affected, we may abstract blood from the temple by leeches, at the same time blistering the nape of the neck, and shaving the head, to permit the application of cooling lotions. Again, when the mucous membrane of the stomach or intestinal canal is the seat of disease, as betrayed by its irritability and pain on pressure, we may apply leeches to the epigastrium, and subsequently a blister. Of internal remedies, calomel is the most important, both from its effect on the secretions of the alimentary canal, and from its facilitating the action of the laxatives, which the state of the brain renders it advisable to administer. Thus, if two grains of calomel are given at intervals of three or four hours, an occasional gentle laxative, such as castor oil, or calcined magnesia, will generally produce two or three bilious discharges from the bowels. The patient should likewise be placed in a warm room, and bottles of hot water applied to those parts that are not possessed of their usual heat. It is often necessary, whilst we are endeavouring to relieve partial congestions by local depletion, to rally the general system from the weakness under which it is labouring, either by the usual medicinal stimulants, or the limited use of wine. We would not be understood by these remarks to say, that there is no necessity for general bleeding in this peculiar fever; so great an excitement may possibly prevail as to justify repeated depletion, and the most active exhibition of cathartics. When the intestinal canal is principally or solely the seat of disease, when diarrhœa to a distressing degree prevails, the stools being deeply bilious, with a degree of fulness and tension in the abdomen, with acute pain on pressure, the urine scanty and high-coloured, and the tongue red, glazed, and dry, the internal administration of the blue pill, combined with opium, together with the free application of leeches to the abdomen, will be demanded, afterwards covering the surface with a large poultice, and renewing it every three hours. The diet should in all cases consist of the mildest and simplest diluents; and if, from the occurrence of extreme weakness, a little wine and water be judged advisable, it should not be continued beyond the necessities of the case.

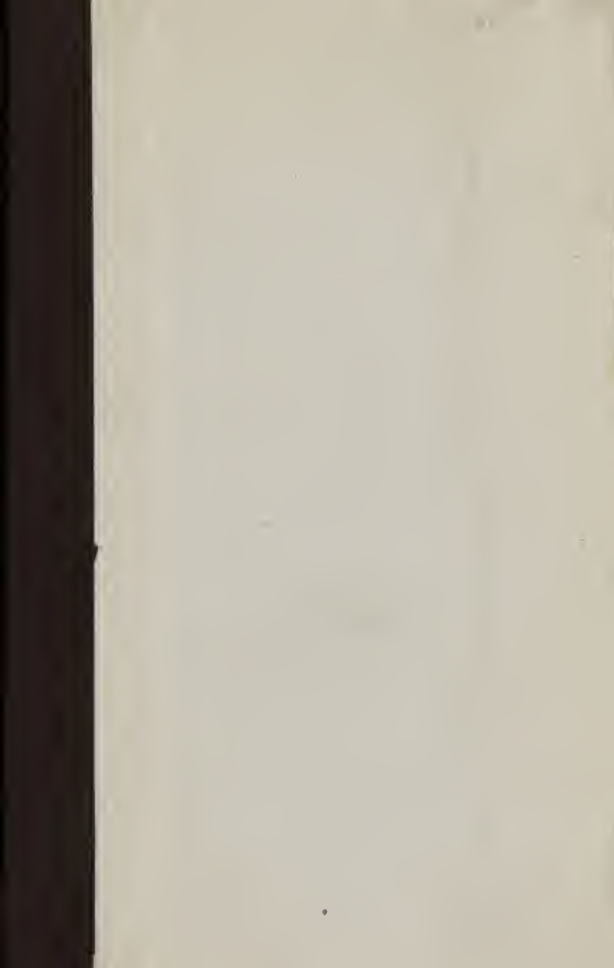
Convalescence from cholera is frequently tedious, and the slightest irregularity has proved sufficient to invite a return of the disease. The diet should consist in the early period of convalescence, of vegetable or farinaceous matter only, and any change must be very gradually introduced. The bowels should be cautiously interfered with, restricting

our endeavours to procure their regular action, with the least possible disturbance to the patient.

We have now concluded the subject of cholera, which presented an immense field of research ; our limits have of course precluded any very detailed account of its causes, attendant phenomena, or treatment, and we have therefore been anxious to convey as much valuable information as possible, in the comparatively short space allotted to such an important topic.

If, as would appear probable, we are not secure from future attacks from this deadly foe, the facts compiled in this article may be of assistance to the practitioner in contending with it ; not that we would wish our remarks to be cited as a paramount authority, or supersede a reference to more valuable testimony, but because they are sufficiently brief to be readily turned to, and sufficiently plain to be easily comprehended. We would, in conclusion, press upon our medical readers, the necessity of regarding the symptoms of cholera as the surest guide to a judicious treatment, dismissing all idea of specifics, and the absurd doctrine, that a disease so doubtful in its causes, so confused in its very history, so inconsistent in its course, and so changeable in its manner of attack, can be subdued by any one settled plan of procedure. In addition to the reports on cholera from Bengal, Bombay, and Madras, and the works of former authors, we may record the publication of the following treatises upon the subject, in the United States : " Practical Observations on Cholera Asphyxia," by Dr. Kirk, of Greenock ; " Two Clinical Lectures," by M. Broussais ; " Boisseau's Treatise," translated by Dr. Bedford ; Stevens, Ashbel Smith, C. C. Yates, G. E. Winslow, J. M. Smith, on Cholera ; Paine's Letters ; Jackson's Cases of Cholera in Paris ; Atkins's Report of the Hospital Physicians in New-York ; Report on Cholera, published by the Massachusetts Medical Society ; Greenough on the Cholera, &c. The reader is also referred to the Cholera Bulletin, published at New-York, and the Cholera Gazette, of Philadelphia, for details of the progress of the disease in those cities ; and also to an admirable article on Cholera, in the fourth part of the Cyclopædia of Practical Medicine, by Dr. Brown, of Sunderland, to whose remarks the editor confesses his obligations in the foregoing article.





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